

HELMINTHOLOGICAL ABSTRACTS

incorporating

BIBLIOGRAPHY OF HELMINTHOLOGY

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285—Acta Dermato-Venereologica.

- a. CHRISTIANSEN, J., 1953.—“An erroneous diagnosis of Oxyuridae. A lumbricillus is taken for an *Enterobius vermicularis*.” 33 (1/2), 94-96. [French, German & Spanish summaries pp. 95-96.]
- b. CHRISTIANSEN, J., 1953.—“Oxyuridae. A survey of the efficiency of the N.I.H. swab method with detection of Oxyuris eggs.” 33 (1/2), 97-102. [French, German & Spanish summaries pp. 101-102.]

286—Acta Medica Italica di Malattie Infettive e Parassitarie.

- a. PASQUALE, N. DE & QUATTROCCHI, G., 1953.—“Sul comportamento delle frazioni proteinemiche nell'anchilostomiasi.” 8 (5), 123-126. [English, French & German summaries p. 126.]

(286a) In nine cases of ancylostomiasis examined by a modified Cohn technique the total serum protein was lowered, the fall in the albumin being greater than the relative increase of the γ -globulins. Even after the parasites had been eliminated and the anaemia cured the alteration in the protein fraction of the serum remained for a long time. R.T.L.

287—Acta Medica Orientalia.

- a. BERGNER-RABINOWITZ, S. & RABINOWITZ, K., 1953.—“The incidence of intestinal parasites among the residents of Jerusalem during the years 1946-1951.” 12 (2), 44-50.

288—Acta Medica Scandinavica.

- a. BJÖRKENHEIM, G., 1953.—“Influence of folic acid on the nervous system in pernicious anemia. Experiences relating to pernicious tapeworm anemia.” 145 (6), 406-409.

(288a) A case of pernicious tapeworm anaemia is described where folic acid therapy during remission resulted in a neurological relapse. The mode of action of folic acid is discussed in the light of possible causes of neurodegeneration in pernicious anaemia, and its use in treatment is condemned. L.C.

289—Acta Medicinæ Okayama.

- a. YAMAGUTI, S., 1953.—“Parasitic worms mainly from Celebes. Part 2. Monogenetic trematodes of fishes.” 8 (3), 203-256.
- b. YAMAGUTI, S., 1953.—“Parasitic worms mainly from Celebes. Part 3. Digenetic trematodes of fishes, II.” 8 (3), 257-295.

(289a) Yamaguti continues his description of a collection of monogenetic trematodes of fishes made by him in Celebes during the war. This second part covers 29 new species of which seven are types of new genera. *Ancyrocephalus macrogaster* n.sp. from the gills of *Gerres punctatus*, in which the anterior portion of the body is subcylindrical, the posterior portion oblong oval or elliptical and flat, occupying the greater part of the body, has the transverse bar of the ventral haptor hooks T-shaped. *A. bilobatus* n.sp. from the gills of *Drepane*

* Titles so marked throughout this number have not been seen in the original.

punctata is easily distinguished from other species by the bilobed testis. *A. spinicirrus* n.sp. from the gills of *D. punctata* is characterized by the presence of a spine in the cirrus, at turning point. *A. platycephali* n.sp. from the gills of *Platycephalus indicus* is described without differential diagnosis. *Haliotrema lutiani* n.sp. from the gills of *Lutianus* sp. differs from other species of the genus in the structure of the male terminal genitalia. *H. caesionis* n.sp. from the gills of *Caesio kuring* is characterized by the peculiar shape of the ventral connective bar which has a distinct median notch, the S-shaped course of the vas deferens and the C-shaped cirrus with a discoid base. *H. upenei* n.sp. from the gills of *Upeneus* sp. differs from related forms in the structures of the male and female copulatory organs. *Metahaliotrema scatophagi* n.g., n.sp. (type species) from the gills of *Scatophagus arsius* differs from the most closely related *Haliotrema* in the absence of the vagina. *M. arii* n.sp. from the gills of *Arius* sp. differs from *M. scatophagi* in the haptoral hooks and in all the characters of the genitalia. *Pseudohaliotrema* (P.) *sphincteroporos* n.g., n.sp. from the gills of *Siganus* sp. is characterized by the vas deferens which runs forward inside the left caecum and does not turn round the caecum. There are two bars of haptoral hooks and a vagina is present. *P. (P.) sigani* n.sp. from the gills of *Siganus* differs from *P. (P.) sphincteroporos* in possessing a single prostatic reservoir and in the structure of the copulatory organ and the genital pore. *P. (Pseudohaliotrema) fusiforme* n.subg., n.sp. from the gills of *Siganus* sp. is characterized by the absence of the prostatic reservoir and seminal receptacle. *Hamatopeduncularia arii* n.g., n.sp. from the gills of *Arius* sp. is unique in possessing tentacle-like appendages on the posterior haptor. *Diplectanum serrani* n.sp. from the gills of *Serranus* sp. differs from other species in the number of concentric rows (9-11) of scales on the squamodisc and the fact that the ovary turns round the right caecum. *Pseudolamellodiscus sphyraenae* n.g., n.sp. from the gills of *Sphyraena* sp. is characterized by the structure of the haptor, especially by the whip-like central bar, and the profuse development of the prostatic cells. *Lamellodiscus flexuosus* n.sp. from the gills of *Synagris taeniopterus* has a winding vesicula seminalis. The flask-shaped accessory adhesive disc, with about 10 chitinous lamellae, has a transversely elongated oval adhesive cavity on the external surface of the swollen part. The terminal genitalia are also characteristic. *L. convolutus* n.sp. from the gills of *S. taeniopterus* is characterized by the convoluted vas deferens. *L. difficilis* n.sp. from the gills of *Lethrinus* sp. is distinguished by its very slender body and the copulatory organ which consists of two large chitinous bodies of complex structure. *L. duplicostatus* n.sp. from the gills of *Lethrinus* sp. has a double ribbed lamellodisc; the copulatory organ is a slender, curved cirrus with a transverse basal piece and a loop-like accessory piece with claw-like processes. *Diplectanocotyla gracilis* n.g., n.sp. from the gills of *Megalops cyprinoides* is distinguished from other genera with a squamodisc by the possession of two pairs of supporting rods for the two pairs of haptoral hooks and of a central sucker instead of the central bar. *Benedenia synagris* n.sp. from the gills of *Synagris* sp. has no genital sinus. There are three pairs of haptoral hooks. The anterior hook is pointed anteriorly and ends posteriorly in two points of different size. The stout middle hook is not laminate. The posterior hook has a long, powerful root with a minute, curved point. *Kuhnia otolithis* n.sp. from the gills of *Otolithes* sp. has a rudimentary caudal lobe, the posterior sucker consists of two valves of different structure and the ovary is vermiform. *Allodiscocotyla chorinemis* n.g., n.sp. from the gills of *Chorinemus moadetta*, while superficially like *Discocotyle*, differs fundamentally in the post-testicular position of the ovary and in the structure of the vagina and male terminal genitalia. *Vallsia chorinemis* n.sp. from the gills of *Chorinemus moadetta* differs from *V. striata* in size and in the bifurcation of the very long oesophagus far behind the genital pore. *Protomicrocotyle celebesensis* n.sp. from the gills of *Caranx* sp. differs from *P. mirabilis* in the body which is flattened, fusiform in shape and in the shape of the eggs which are fusiform with a rigid filament. It also differs from *P. pacifica* in the structure of the terminal genitalia and in having 40-55 testes. *Metamicrocotyle bora* n.g., n.sp. from the gills of *Mugil cephalus* is described. This new genus resembles *Microcotyle* in general anatomy but the suckorial valves on one side are sessile and consist of three pairs of arched, marginal, chitinous pieces and an X-shaped central piece, while those on the other side have moderately long stalks and consist of four pairs of lateral, chitinous pieces, a U-shaped central piece and a pair of basal,

spiniform pieces. *Metamicrocotyla filiformis* n.sp. from the gills of *Mugil cephalus* differs from *M. bora* by its more slender body shape and the presence of 48 suckorial valves. The testes number about 70. The genital atrium has 12 spines on each side divided into three groups of four each. *Heteromicrocotyla carangis* n.g., n.sp. from the gills of *Caranx* sp. is distinguished from *Microcotyle* by the posterior suckorial valves of one side being different from those on the other side. *Gotocotyla meservei* n.sp. from the gills of *Elagatis* sp. differs from *G. sawara* in body size and in the absence of the dorsal adhesive organ and vagina. R.T.L.

(289b) Yamaguti continues his systematic account of the digenetic trematodes of marine fishes collected by him in Celebes and records 32 species of which 14 are new, including one which is type of a new genus of Didymozoidae. *Prosorhynchus longicollis* n.sp. from the small intestine of *Sphyræna* sp. has a very long neck like *P. freitasi* but its intestine is directed backwards and the reproductive organs are restricted to the posterior quarter of the body. *Apocreadium synagris* n.sp. from the small intestine of *Synagris taeniopterus* differs from *A. balistis*, *A. mexicanum* and *A. longisinosum* in egg size. *Lasiotocus lethrini* n.sp. from the small intestine of *Lethrinus* sp. (type host) and *Diagramma* sp. is characterized by the sharp spines which cover the cirrus and the inside of the genital atrium. The uterine coils do not extend to the posterior extremity. *Parahemiurus clupei* n.sp. from the stomach of *Clupea clupeoides* is the largest species of the genus. It has an unusually long tail, a very strongly muscular vesicula seminalis and the eggs are small ($18\mu-21\mu \times 9\mu-11\mu$). *Aphanurus dorosomatis* n.sp. from the stomach of *Dorosoma chacunda* is distinguished by its slender body shape. *Aponurus synagris* n.sp. from the intestine of *Synagris taeniopterus* is differentiated by various characters from seven other species of the genus. *Lecithochirium priacanthi* n.sp. from the stomach of *Priacanthus hamrur*, *L. longicaudatum* n.sp. from the stomach of *Saurida argyrophanes*, *Lecithocladium parviovum* n.sp., *L. angustiovum* n.sp. and *L. scombr* n.sp. from the stomach of *Scomber kanagunta*, and *L. megalaspis* n.sp. from the stomach of *Megalaspis* sp. are distinguished chiefly on size of egg. *Magnacetabulum leiognathi* n.sp. from the stomach of *Leiognathus dussumieri* differs from the only known species in that the acetabulum is not so large as the oral sucker and in the shape of the vesicula seminalis which is elongated. *Unitubulotestis carangis* n.g., n.sp. (type species) from the pharyngobranchial region of *Caranx* sp. has a single testis. On this account, a new genus is formed to which *Nematobothrium sardae* is moved. R.T.L.

290—Acta Tropica. Basle.

- a. RODHAIN, J., 1953.—“La pathogénie des filarioses humaines, examinée à la lumière des récents progrès thérapeutiques.” 10 (3), 194–208. [English & German summaries p. 208.]

(290a) The morbid changes resulting in man from infection with filarial worms are reviewed under three heads, viz., (i) local reactions due to the adult worms, (ii) general allergic or toxic manifestations and (iii) reactions associated with the microfilariae. The recent chemotherapeutic advances have revealed that the microfilariae as well as the adults have antigenic properties which explain some of the more obscure points in the symptomatology of these infections and give support to the theory of the filarial aetiology of elephantiasis arabum. Although it is still disputed, Rodhain is inclined to support the view that *Onchocerca volvulus* is concerned in the aetiology of the genital elephantiasis of Central Africa. R.T.L.

291—Acta Veterinaria. Budapest.

- a. MATOFF, K., 1953.—“Zur Frage der Muskeltrichinellose der Kaltblüter.” 3 (4), 329–335. [Russian summary p. 335.]
- b. BENEDEK, L. & NEMESÉRI, L., 1953.—“Die mikroskopische Diagnose der Leberegel-seuche.” 3 (4), 415–422. [Russian summary p. 422.]
- c. KOBULEI, T., 1953.—[Contributions to the anatomy and systematics of some little known Hymenolepididae from the Soricidae.] 3 (4), 431–438. [In Russian: Germany summary p. 438.]

(291a) In an attempt to establish whether *Trichinella* larvae will encapsulate in the musculature of cold-blooded animals, Matoff fed numerous infective larvae to three tortoises

which were then kept in incubators at 37°C. The first tortoise died 12 days after infection and although a moderate number of mature adults (both males and females) were found in the small intestine there were no larvae in the muscles. The second tortoise was killed after 35 days and living mature worms (37 females and two males) were recovered from the small intestine. Larvae, in various stages of development from young worms which had just penetrated the muscle fibres to coiled larvae, were found in the muscles of the head and neck. There were no encapsulated larvae, but inflammatory foci (with degenerate and dead structureless larvae) corresponding to those found in previous experiments with pigeons were observed. Larvae from this second tortoise were fed to three mice and produced an infection in one of them. The third tortoise was killed 50 days after infection but there was no trace of muscle larvae.

A.E.F.

(291b) After reviewing other methods of concentrating liver-fluke eggs, Benedek & Nemeséri describe a modification of Benedek's technique [*Allatorv. Lapok*, 1943, p. 139] which they have perfected over a period of three years during which time nearly 100,000 specimens from cattle, sheep and goats have been examined. The technique is as follows: the faecal specimen (5 gm. for cattle, 2 gm. for sheep and goats) is washed with 100 ml. tap-water through a 150–200 μ mesh filter into a glass; where necessary the specimen is thoroughly mixed with a little water before filtering. After two to three minutes the supernatant is poured off leaving only 1 ml. to 2 ml. of fluid; 15–18 ml. water is then added to the filtrate and the whole poured off into a test-tube. After a further three minutes the supernatant is again poured off leaving 0.5 ml. sediment to which one or two drops of carbol-fuchsin solution are added. This is well shaken and 15–18 ml. water added. After three minutes 0.1 to 0.2 ml. is drawn from the sediment by pipette on to a slide and examined under a 30–60 magnification. The unstained eggs are easily identified against the red-coloured sediment. The authors claim that this method is simpler, quicker, more practical and far more accurate than any other they have tested; they have been able to demonstrate very light infections which other techniques have failed to reveal.

A.E.F.

(291c) Kobulei redescribes and figures *Hymenolepis singularis* Kholodkovski, 1912 from material recovered from *Sorex araneus* and *Crocidura leucodon* by the 1st Hungarian Parasitological Expedition. He allocates to *Neoskrjabinolepis* Spasski, 1948 the species originally described by Kholodkovski in 1905 as *H. diaphana* and which had been placed in *Dicranotaenia* by Skryabin & Matevosyan in 1948 and in *Ditesiolepis* by Sotys in 1952.

A.E.F.

292—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

- a. ANON., 1953.—“Potato root eelworm.” No. 284, 6 pp. [Revision of 1951 Leaflet.]
- b. ANON., 1953.—“Eelworms on strawberries.” No. 414, 7 pp.

293—Älvsborgs Läns Norra Hushållningssällskaps Tidskrift.

- *a. SÖDERPALM, E., 1953.—“Havreälens utbredning och betydelse inom området.” 60 (1), 10–11.

(293a) The oat nematode, *Heterodera major*, has been found at several places in the county of Älvsborg in Sweden. Methods of control are discussed and it is recommended not to plant oats more than once in a crop rotation.

S.B.

294—American Journal of Clinical Pathology.

- a. FOLDES, J., 1953.—“Acute trichinosis with finding of larva in bone marrow.” 23 (9), 918–920.

295—American Journal of Hygiene.

- a. WEINSTEIN, P. P., 1953.—“The cultivation of the free-living stages of hookworms in the absence of living bacteria.” 58 (3), 352–376.

(295a) Experiments were made with the larvae of *Ancylostoma caninum* and *A. duodenale* to ascertain if they could be reared in the absence of living bacteria and to characterize the

substances requisite for larval growth. By using either fresh chick embryo or rat liver extracts containing penicillin and streptomycin, bacteria-free, filariform larvae were obtained. Heating of the chick embryo extract drastically reduced the number of larvae and passage through a bacteriological filter completely removed its ability to promote growth. Some evidence was obtained that rat liver extract may at times inhibit larval development. R.T.L.

296—American Journal of Tropical Medicine and Hygiene.

- a. KESSEL, J. F., THOORIS, G. C. & BAMBRIDGE, B., 1953.—“The use of diethylcarbamazine (hetrazan or ortezone) in Tahiti as an aid in the control of filariasis.” 2 (6), 1050–1061.
- b. KARTMAN, L., 1953.—“On the growth of *Dirofilaria immitis* in the mosquito.” 2 (6), 1062–1069.
- c. SADUN, E. H. & MAIPHOM, C., 1953.—“Studies on the epidemiology of the human intestinal fluke, *Fasciolopsis buski* (Lankester) in Central Thailand.” 2 (6), 1070–1084.

(296a) Annual microfilarial counts have been made for one, two and three years after the use of hetrazan as a microfilaricide in a filariasis control campaign in Tahiti. The results are tabulated. Of 145 individuals treated on a dosage schedule of 2 mg. per kg. body-weight 3 times daily for 7 days and repeated on those who were still positive at the end of the year, the percentage of positives was reduced to 17.5 by the end of the second year and the average pre-treatment filarial count per 20 c.mm. of blood had dropped from 79 to 0.8. A second dosage schedule of 2 mg. per kg. body-weight thrice daily one day each month for one year is stated to have given promise of being a practical method of administration in a filariasis control programme, but whether the reduction in microfilarial counts are sufficient to limit the transmission of *Wuchereria bancrofti* to a level where clinical cases will cease to occur can only be determined after a period of years. R.T.L.

(296b) Further data are presented on the growth of *Dirofilaria immitis* in the mosquito vector. The host constitution had apparently an effect on the size attained by the filarial larvae and the larval length: width ratio varied considerably between genera, and in *Culex* and *Aedes* between species, but to a lesser extent in *Anopheles*. At 20 days after the mosquito had taken an infective meal both long and short individual third-stage larvae were still found but it is not known if these differences are linked with sex differentiation. R.T.L.

(296c) In Central Thailand *Fasciolopsis buski* is endemic in Pak Hai district in Ayuthia Province and Bang Kun Sri village in Dhonburi Province where water caltrop is extensively cultivated. A total of 2,936 persons was examined. In 802 unselected individuals in six villages in the Bang Kun Sri area the incidence of infection was 8% to 25%, with an over-all incidence of 18%. In Bang Kun Sri and Shak Pra where the people live in the immediate vicinity of the water caltrop cultivations the incidence was 25% and 23% respectively, whereas in other villages a little further off it varied from 8% to 10%. In 354 persons from Lard Shid 9 and Lard Shid 10 in Pak Hai district the incidence in the former village was 19% and in the latter 10%. In and around Prapraton village about 35 miles south-west of Bangkok, where the cultivations were primarily for rice, only 6 out of 407 unselected individuals were infected. It was found that in the above areas predominantly under caltrop cultivation the incidence of hookworm varied from 0% to 9%, whereas in Prapraton and Tamsala villages the incidence of hookworm was 20%. Age incidence analysis of *Fasciolopsis* infection showed that children from 10 to 14 years old had the highest incidence and intensity. This is believed to be the first time that *F. buski* has been reported as endemic in Thailand. It is remarked that although pigs and water buffaloes are reputed to be reservoirs of *F. buski* neither were seen in the Bang Kun Sri area but were common in the Prapraton area. R.T.L.

297—American Journal of Veterinary Research.

- a. LEVINE, N. D., 1953.—“The effects of aureomycin and other compounds on horse strongyle larvae.” 14 (53), 548–549.
- b. PORTER, D. A., 1953.—“Cross transmission of parasitic worms between cattle and sheep.” 14 (53), 550–554.

- c. ALICATA, J. E., 1953.—“Observations on the lethal action of polyborate on swine kidney worm (*Stephanurus dentatus*) larvae in soil.” 14 (53), 563-570.
- d. EHRENFORD, F. A., 1953.—“Differentiation of the ova of *Ancylostoma caninum* and *Uncinaria stenocephala* in dogs.” 14 (53), 578-580.
- e. OLSEN, O. W., 1953.—“An evaluation of medicaments, with special reference to Teniatol for removing fringed tapeworms (*Thysanosoma actinioides*) from the livers of sheep.” 14 (53), 616-620.

(297a) Of 14 compounds of varying structural formulae which were tested against the eggs and larvae of strongyles in horse faeces only three inhibited development. These were aureomycin (0.1%), hexachlorocyclopentadiene (0.1%) and *n*-hexyl *iso*-octyl amine (0.053%). S.W.

(297b) Porter gives detailed data on experiments made on the cross transmission of helminths. Lambs and calves were grazed together on two pastures of which one had been previously grazed by cattle and the other by sheep, both infected with *Haemonchus contortus*. On the first pasture calves became appreciably more heavily infected than did lambs; on the second the lambs were more heavily infected than the calves. *Cooperia punctata* from cattle developed in calves in numbers from 9-30 times greater than the numbers in lambs; *C. pectinata* from cattle developed in calves in numbers from 2-30 times greater than in lambs; *C. curticei* from sheep developed in lambs and calves in approximately equal numbers. *Bunostomum trigonocephalum*, *Oesophagostomum columbianum*, *Strongyloides papillosus* and *Trichostrongylus colubriformis* from sheep were not transmitted to calves. *Oesophagostomum radiatum*, *Nematodirus helvetianus* and *Ostertagia ostertagi* of cattle were not transmitted to lambs. *Moniezia expansa* occurred in both hosts but *M. benedeni* only in calves. S.W.

(297c) Alicata describes a laboratory and a small scale field experiment on the effect of polyborate (a mixture containing 77% sodium pentaborate tetrahydrate and 18% sodium tetraborate pentahydrate) on the eggs and larvae of *Stephanurus dentatus* in soil. Polyborate was applied at the rate of 5 lb. per 100 sq. ft., either in aqueous solution or dry; when sprinkled dry the soil was watered before and after application. A known number of infective larvae was introduced into each lot of soil. The soil was examined 10 and 20 days after treatment. In the laboratory viable larvae from treated soil after 10 days averaged 0.1% of those from controls; none were found in treated soil after 20 days. In the field infective larvae from treated soil averaged 15.1% of the controls after 10 days and 0.1% after 20 days. The residual effect, however, appears to be limited. Rabbits killed one month after feeding with treated soil showed very few or no lesions in their livers. A pig, similarly treated, had a normal liver when killed. Control animals fed with untreated soil showed typical *S. dentatus* lesions. No toxic effects were observed in a four-month-old pig kept on a plot treated with polyborate and whose skin was sprayed daily with a 10% solution. S.W.

(297d) Ehrenford presents data on the measurements, in various media, of the eggs of *Ancylostoma caninum* and *Uncinaria stenocephala* obtained from 147 dogs and compares his figures with those of other workers. Teased from the uterus in physiological saline the eggs of *A. caninum* measured 62 μ by 37 μ -43 μ , those of *U. stenocephala* 80 μ -86 μ by 49 μ . The range in other media after flotation etc. was: *A. caninum* 55 μ -74 μ by 37 μ -43 μ , *U. stenocephala* 71 μ -93 μ by 37 μ -55 μ . S.W.

(297e) From a series of experiments with Teniatol against *Thysanosoma actinioides* in lambs, Olsen concludes that its degree of efficacy is too low and too variable for it to be economically worth-while. In lambs treated with 1 oz. of Teniatol the percentage condemnation of livers was 39.5% of that in controls; when treated with 2 oz. the percentage condemnation was 62.5% of that in controls. S.W.

298—Annales de Parasitologie Humaine et Comparée.

- a. EUZET, L., 1953.—“Cestodes tétraphyllides nouveaux ou peu connus de *Dasybatis pastinaca* (L.).” 28 (5/6), 339–351.
- b. DOLLFUS, R. P. & CHABAUD, A. G., 1953.—“*Distomum musculorum suis*” H. C. J. Duncker 1896, mésocercaire d'*Alaria alata* (J. A. E. Goeze 1782), (Trematoda, Strigeata) chez un sanglier (*Sus scrofa* L. 1758, Fera).” 28 (5/6), 352–364.
- c. CHABAUD, A. G., 1953.—“Sur un nématode Acuariidae, parasite du martin-pêcheur *Alcedo atthis* (L.).” 28 (5/6), 365–371.
- d. GALLIARD, H., LAPIERRE, J., LARIVIÈRE, M. & BERDONNEAU, R., 1953.—“Test de Thorn à l'A.C.T.H. et autres épreuves du fonctionnement cortico-surrénal dans des cas d'infestation par les helminthes.” 28 (5/6), 372–386.
- e. BALTAZARD M., CHABAUD, A. G., MOFIDI, C. & MINOU, A., 1953.—“Une nouvelle filaire ‘de laboratoire.’” 28 (5/6), 387–391.
- f. BAILENGER, J. & NEUZIL, E., 1953.—“Nouvelles techniques d'examen des helminthes: fixation; coloration; montage.” 28 (5/6), 392–398.
- g. DOLLFUS, R. P. & BUTTNER, A., 1953.—“Localisation anormale de *Metorchis xanthosomus* (Creplin 1846) chez un canard domestique (canard d'Inde).” 28 (5/6), 450–452.
- h. BUTTNER, A., 1953.—“Un curieux cas de phorésie: transport de 21 *Ancylys fluviatilis* Müller par un dytique ♀ (*Dytiscus marginalis* L.) et possibilité de diffusion des cercaires parasites de ces mollusques pulmonés.” 28 (5/6), 452–453.
- i. FLOCH, H., 1953.—“Pseudo-parasitisme de l'homme par *Hexameris* sp.” 28 (5/6), 454.

(298a) Additional details are given of the anatomy of *Rhinebothrium tumidulum* and *R. walga* from *Dasybatis pastinaca*. *Rhabdotobothrium dollfusi* n.g., n.sp., is described from the same host. As in *Rhinebothrium* and *Caulobothrium*, the suckers are subdivided into loculi and the scolex lacks a myzorhynchus, but in *Rhabdotobothrium* there is no cephalic stalk.

R.T.L.

(298b) The history is recalled of the discovery by Leunis in 1881, of a larval trematode in the diaphragm of a pig at Waldenburg. Since then it has been reported by several observers from other parts of Germany, from France and from the U.S.A. In 1898 Stiles replaced the original trinomial *Distomum musculorum suis* by the binary *Agamodistomum suis*. Chester Hughes showed, in 1928, that its organization resembled that of strigeid larvae. The term “mesocercaria” which Bosma gave to a similar stage in the life-cycle of *Alaria mustelae* has been generally adopted. Dollfus & Chabaud are of the opinion that *Alaria alata* is the only species which occurs in Europe. A detailed description of the mesocercaria is now given. When infected pig muscle was fed to white rats and white mice, numerous living and unchanged mesocercariae were recovered from the diaphragm a week later. In one of the rats a living larva, possibly in the metacercarial stage, was found free in muscle three months afterwards. The suggestion is made that the pig becomes infected with the mesocercaria of *Alaria alata* by eating tadpoles and frogs, and serves as an accidental, alternative vector in the normal cycle of this parasite.

R.T.L.

(298c) Chabaud redescribes and figures the male of *Dispharagus decorus* from the submucosa of the gizzard of *Alcedo atthis* in Iran. The female is still unknown. Hitherto this species has been placed in the Seuratiinae but it is more nearly related to the Acuariinae. It appears necessary to broaden the definition of the genus *Rusguniella* to include the genus *Aviculariella* and *D. decorus* which has some affinities with *Stegophorus*. The family Acuariidae is markedly homogeneous. Its recent subdivision into genera, subfamilies and families is deprecated.

R.T.L.

(298d) As the result of further trials in various helminth infections, it is concluded that the Thorn test is of questionable value in diagnosis, although the finding eventually of *Wuchereria malayi* in Tonkin cases in which the eosinophils proved irreducible, shows that the intramuscular injection of 25 mg. of ACTH can occasionally disclose the existence of an inapparent parasitism.

R.T.L.

(298e) *Meriones libycus* which is the definitive host of *Dipetalonema blanci*, and *Ornithodoros tartakovskyi* which is the vector of this filaria are both easily handled, maintained and

reproduced in captivity as experimental animals for researches on filariasis. For such purposes they have many advantages over *Dirofilaria immitis* and *Litomosoides carinii*. R.T.L.

(298f) Before fixing helminths should be relaxed by immersion in an anaesthetic solution containing menthol 0.25 gm., "Tween 80" (oleic ester) 5 gm. and 100 c.c. of water. Thereafter nematodes are fixed in hot alcohol and other helminths in Demke's fixative for 1½ to 2 hours and then washed in distilled water. As a stain, chlorazol black E, introduced by Cannon (1937), is recommended. After staining for 30 to 45 minutes, the specimens are rapidly washed in distilled water, transferred to a solution containing hydrochloric acid 0.5 c.c., glycerol 10 c.c. and water to 100 c.c. and left to evaporate at 37°C. They are then mounted in a sodium alginate gel. R.T.L.

(298g) A domestic duck, *Cairina moschata*, was fed on fish from the neighbourhood of Richelieu which were naturally infected with numerous encysted metacercariae of *Metorchis xanthosomus*. At autopsy the liver was found to be abnormal and the gall-bladder, the normal habitat of this fluke, was absent. But over 300 adult *M. xanthosomus* were present in a secondary loop of the anterior part of the duodenum. R.T.L.

(298h) Buttner describes a curious example of phoresis. Near Richelieu, 21 specimens of *Ancylus fluviatilis* were found firmly attached to the elytra of *Dytiscus marginalis*. As the snails in the neighbourhood are frequently infected with various kinds of cercariae, they might be carried for considerable distances and establish new sites of infection. Buttner cites an unpublished observation by the late Emile Brumpt, that various palmipeds convey molluscs in the earth attached to their feet. R.T.L.

299—Annales de la Société Belge de Médecine Tropicale.

- a. FAIN, A., 1953.—"Observations sur *Hepaticola hepatica* (Bancroft 1893) Hall 1916 au Congo Belge." 33 (2), 107-117. [Flemish summary pp. 115-116.]
- b. WANSON, M. & RODHAIN, J., 1953.—"Développement abortif de *Loa papionis* chez divers arthropodes. Insuccès du traitement à la diéthylcarbamazine dans la filariose diurne du babouin." 33 (2), 177-184. [Flemish summary p. 184.]
- c. DERAMÉE, O., THIENPONT, D., FAIN, A. & JADIN, J., 1953.—"Sur un foyer de bilharziose canine à *Schistosoma rodhaini* Brumpt au Ruanda-Urundi. Note préliminaire." 33 (3), 207-209. [Flemish summary p. 209.]
- d. LAGRANGE, E., 1953.—"La lutte biologique contre les planorbes." 33 (3), 227-236. [Flemish summary p. 235.]

(299a) To the list of 16 mammalian hosts of *Hepaticola hepatica*, nine new host species are now added from the Blukwa region of the upper Ituri in the Belgian Congo. Experiments on rats, mice and dogs showed that infection is direct but only after the eggs have undergone a long incubation period extending over four months or after passing through the gut of a domestic or wild carnivore. R.T.L.

(299b) Attempts to infect various laboratory-bred arthropods (*Culex molestus*, *Aedes aegypti*, *Anopheles maculipennis atroparvus*, *A. quadrimaculatus*, *Ornithodoros moubata*, *Bdellonyssus bacoti* and *Cimex hemipterus*) by feeding them on a baboon with a light infection of *Loa papionis* failed. That the microfilariae were refractory to hetrazan suggests that *L. papionis* and *L. loa* are different species and that consequently monkeys are not reservoirs of infection in man. R.T.L.

(299c) Hitherto the only known hosts of *Schistosoma rodhaini* in nature were wild rodents. The native dog and *Felis serval* in Ruanda-Urundi have now been found naturally infected. The faeces of 16 out of 29 dogs at Musha contained *S. rodhaini* eggs. The dogs presented marked and characteristic clinical symptoms. R.T.L.

(299d) Lagrange finds that two non-African fishes, *Umbra pygmoea* and *Cichlasoma biocellatum*, and the African fishes *Tetraodon schoutedeni* and *Pelmatochromis aff. kribensis* feed

voraciously on small planorbids in the aquarium. He discusses their potential use against schistosome vectors and the risk of introducing the foreign species into Africa. R.T.L.

300—Annali della Sperimentazione Agraria.

- a. MEZETTI, A., 1953.—“Osservazioni sull'anguillulosi radicale dei cereali in Italia.” Nuova serie, 7 (3), 743–758. [English summary p. 758.]
- b. BONGINI, V., 1953.—“Segnalazioni fitopatologiche.” Nuova serie, 7 (3), Suppl. pp. xvii–liv. [English summary p. liv.]

(300a) Mezetti describes serious damage to wheat associated with the cereal root eelworm, *Heterodera major*, which occurred in 1951 and 1952 in the Emilia district of Italy. Damage was first obvious in December. The author describes the parasite and the symptoms of disease and reviews the biology of the nematode and means of controlling the disease. M.T.F.

(300b) Bongini records a serious attack of *Tylenchus* [*Ditylenchus*] *dipsaci* Kühn on *Hydrangea hortensis* and describes symptoms and treatment with an insecticide. She also records that *Bouvardia humboldtii* was attacked, which is a new host record. M.T.F.

301—Annals of Applied Biology.

- a. STONE, L. E. W., 1953.—“Observations on the occurrence of the eelworm, *Pratylenchus pratensis* Filipjev, in delphinium roots.” 40 (4), 742–749.

(301a) Stone found that the severity of delphinium root rot was correlated with the soil population of *Pratylenchus pratensis* [sensu lato]. Black slit-like lesions are produced on the roots which increase and cause extensive rot; these symptoms were also set up experimentally. Considerable numbers of *P. pratensis* were found in the roots but no pathogenic fungi. He achieved considerable control in the field by fumigation with D-D mixture and methyl bromide. J.B.G.

302—Annals of Internal Medicine.

- a. ROQUE, F. T., LUDWICK, R. W. & BELL, J. C., 1953.—“Pulmonary paragonimiasis: a review with case reports from Korea and the Philippines.” 38 (6), 1206–1221.

(302a) Paragonimiasis should be suspected when a patient with haemoptysis has a history of residence in an area in which paragonimiasis is known to be endemic. It seems probable that cases may occur among American soldiers who have served in Korea and may be misdiagnosed as pulmonary tuberculosis, bronchiectasis, cystic disease of the lungs etc. As two cases who have recently been treated in hospital were originally diagnosed as pulmonary tuberculosis, the clinical and radiological features of this disease are discussed. Although the infection is normally contracted by eating crustaceans containing metacercariae of *Paragonimus*, it is considered that it may also be acquired from contaminated drinking water. R.T.L.

303—Annals and Magazine of Natural History.

- a. ALLGÉN, C., 1953.—“Terrestrial nematodes from Jan Mayen.” Ser. XII, 6 (69), 665–688.

(303a) Allgén tabulates the distribution of 900 specimens of terrestrial nematodes collected from 35 sampling localities on Jan Mayen by Macfadyen and the geographical distribution of all known Arctic nematodes. He gives morphological and taxonomic descriptions of several of the little known species in the collection and of the following new species: (i) *Macfadyenia filicaudata* n.g., n.sp. which differs from *Euchromadora* in having a thin, smooth, non-annulated cuticle and a rather large, strongly muscular oesophageal bulb; (ii) *Parachromagasteriella arctica* n.sp. which is closely related to, but not differentiated from, *P. cylindricauda* and is based on a single female(?) specimen. R.T.L.

304—Annals of Tropical Medicine and Parasitology.

- a. BERTRAM, D. S., 1953.—“A nesting method used for prolonged exposure of cotton rats to superinfection with their filarial parasite, *Litomosoides carinii* (Travassos, 1919).” 47 (4), 371–374.
- b. MARKOWSKI, S., 1953.—“The distribution of the molluscan vectors of schistosomiasis in the Sennar area of the Sudan, and their invasion of the Gezira irrigation system.” 47 (4), 375–380.
- c. KERSHAW, W. E., KEAY, R. W. J., NICHOLAS, W. L. & ZAHRA, A., 1953.—“Studies on the epidemiology of filariasis in West Africa, with special reference to the British Cameroons and the Niger delta. IV. The incidence of *Loa loa* and *Acanthocheilonema perstans* in the rain-forest, the forest fringe and the mountain grasslands of the British Cameroons, with observations on the species of *Chrysops* and *Culicoides* found.” 47 (4), 406–425.

(304b) Markowski reports on his investigations into the distribution and taxonomy of the schistosome vectors of the Sennar area and the means whereby they enter its irrigation system. He finds that the main factor responsible for the molluscan invasion of the area is the current of the Blue Nile which brings a great variety of fauna down from the distant reaches of the river to the Sennar reservoir and thence through the main canal to the subsidiary water courses. The peak of invasion takes place during the flood period. *Bulinus truncatus* mainly occurs in the reservoir and the main canal, and is limited to the neighbourhood of the sluices which become breeding places providing a constant supply of snails for the irrigation waters of the Gezira. Specimens of *Planorbis boissyi* were not found in the reservoir or its main canal between Sennar and Muzeiqila but were dominant elsewhere. R.T.L.

(304c) The vegetative features of mangrove swamp, rain forest, transitional zone of savannah with relict forest and of the several types of mountain vegetation in the British Cameroons are described. The results are given of surveys of the incidence of infection with *Loa loa* and *Acanthocheilonema perstans* among the various age groups of the village populations. The incidence of *L. loa* was high in the rain forest where *Chrysops silacea* and *C. dimidiata* were both present. It fell in the abrupt forest fringe where *C. zahrai* also occurs and was absent in the grasslands where no *Chrysops* were found. The incidence of *A. perstans* was also high in the rain forest where *Culicoides grahami*, *C. inornatipennis*, *C. austeni* and *C. fulvithorax* were found but fell to a low level at the approaches to the abrupt forest fringe where *C. austeni* is uncommon. It was absent in the grasslands where only *C. grahami* has been found so far. It is suggested that the fall of incidence of these two filarial infections which occur separately and at different rates may be due to attenuation of the normal transmission mechanism or possibly by its replacement by a less effective vector. R.T.L.

305—Annual Review of Microbiology.

- a. BUEDING, E. & MOST, H., 1953.—“Helminths: metabolism, nutrition, and chemotherapy.” 7, 295–326.

(305a) Bueding & Most have reviewed the recent literature on the metabolism of helminths. An account of the chemotherapy of helminth infections of man is included. W.P.R.

306—Archiv für Hydrobiologie.

- a. SIOLI, H., 1953.—“Limnologische Untersuchungen und Betrachtungen zur erstmaligen Entdeckung endemischer Schistosomiasis (*Sch. mansoni*) im Amazonasgebiet.” 48 (1), 1–23.

(306a) Sioli has examined the possibility of schistosomiasis *mansoni* spreading in the Amazonas area of Brazil. The only district where indigenous infection has so far been proved is Fordlandia (State of Pará) and he concludes that danger of the disease spreading only exists in the carboniferous areas north and south of the lower Amazon Valley; here the water is sufficiently neutral to provide favourable conditions for the water snails (including planorbids) which are present. It is considered that if the existing flood areas in these districts, which with their aquatic plants are particularly favourable to planorbids, became thickly populated schistosomiasis might become endemic after it had been introduced by immigrants. There is no danger in non-flooding areas since the only water available in streams and wells is too acid

and has no snail population. A survey of snails in the Fordlandia district showed the following planorbid to be present: *Tropicorbis (Obstructio) paparyensis*, *Gyraulus (Drepanotrema) schubarti* and *G. (D.) anatinus*.

A.E.F.

307—Archiv für Mikrobiologie.

- a. BÜSING, K. H., DÖLL, W. & FREYTAG, K., 1953.—“Die Bakterienflora der medizinischen Blutegele.” **19** (1), 52–86.

308—Archives Internationales de Pharmacodynamie et de Thérapie.

- a. MACKIE, A., 1953.—“The effect of some oxidation products of phenothiazine on *Ascaris lumbricoides* in vitro.” **92** (3/4), 301–304.

(308a) Oxidation products of phenothiazine were tested against *Ascaris lumbricoides* in vitro at 37°C.–38°C. using Baldwin's kymographic technique; they acted as follows: phenothiazone exerted a depressant effect at a concentration of 1:16,000, and a paralysant effect at 1:10,000. The introduction of a hydroxyl group in position 7 and reduction to phenothiazine both destroyed this effect. Thionol had no effect at 1:1,000. Phenothiazine sulphoxide exerted a powerful depressant effect at 1:1,000.

L.C.

309—Archivio Italiano di Scienze Mediche Tropicali e di Parassitologia.

- a. PAOLA, G. DE & MASTRANDREA, G., 1953.—“Studio dell'ossaltemia in alcune elmintiasi.” **34** (3), 145–159. [English, French & German summaries pp. 157–158.]
- b. CICCINI, T., 1953.—“Considerazioni epidemiologiche e cliniche su alcuni casi di imenolepiasi da *Hymenolepis nana* osservati dal 1945 al 1951.” **34** (6), 311–318. [English, French & German summaries pp. 316–317.]
- c. LIPPARONI, E., 1953.—“Un decennio di attività dell'ambulatorio del Villaggio Duca degli Abruzzi. (Nota I—rilievi statistici—epidemiologici.)” **34** (8), 408–442. [English, French & German summaries pp. 440–441.]
- d. CAPOCACCIA, L., MASTRANDREA, G. & MORESCHI, R., 1953.—“L'uso di un vermifugo a base di fermenti proteolitici vegetali nell'infestazione da ascaridi.” **34** (9), 473–484. [English, French & German summaries pp. 483–484.]
- e. LIPPARONI, E., 1953.—“Sul ‘Nilodin’ nella terapia della schistosomiasi vescicale in Somalia.” **34** (10), 530–537. [English, French & German summaries p. 537.]

(309a) In 24 cases of oxalaemia with various helminth infections there was no demonstrable correlation between the degree of oxalaemia and the species of helminths present. A decline in the degree of oxalaemia was noted in five cases examined after anthelmintic treatment. In the few cases studied calcaemia was slightly below normal.

P.M.B.

(309b) In the course of faecal examinations of about 11,000 individuals of all ages in Rome during the years 1945–51, 38 cases of *Hymenolepis nana* infection were found, mainly in boys. Twenty-nine of those infected came from Latium. Of 150 children examined in the community of Meta di Sorrento, seven had *H. nana*.

P.M.B.

(309c) Epidemiological information collected during ten years' medical service at Duca degli Abruzzi (with a population of about 30,000) in Somaliland is presented, including the summarized results of 1,274 faecal examinations which revealed the presence of *Ascaris*, *Trichuris*, hookworm, *Enterobius*, *Strongyloides* & *Taenia* sp. Although the number of clinical cases of hookworm disease seen was only 934 the number of carriers is known to be very much higher, there being a high degree of immunity to the infection among the population. Registered cases of schistosomiasis haematobia numbered 2,897; where schistosome eggs were present in the faeces they were those of *Schistosoma haematobium*.

P.M.B.

(309d) In tests with Vermizym for the treatment of ascariasis, 25 out of 37 adults and 9 out of 13 children were cured. There were no toxic effects.

P.M.B.

(309e) Somewhat erratic results are reported by Lipparoni in the treatment of vesical schistosomiasis with nilodin in Somaliland; the drug gave a cure in only 13 out of 40 cases treated. Very few had received any previous treatment. Mass treatment with nilodin is not

recommended in Somaliland as the results were so inconsistent, possibly owing to a resistant strain of *Schistosoma haematobium*; attention is also drawn to the high cost of the drug. The optimum dose is considered to be 75 mg.-100 mg. per kg. body-weight. P.M.B.

310—Atti della Accademia Nazionale dei Lincei. Rendiconti. Classe di Scienze Fisiche, Matematiche e Naturali. Rome.

- a. DOLLFUS, R. P., 1953.—“Sulla forma adulta di un Echinostomide (Trematoda Digenea) ottenuta sperimentalmente nel ratto bianco di laboratorio.” Serie 8, 14 (5), 658-665.
- b. BIOCCA, E. & BRONZINI, E., 1953.—“*Uncinaria thapari* n.sp. parassita dell'*Ailurus fulgens*.” Serie 8, 14 (6), 824-827.

(310a) Adult *Echinoparyphium bioccalerouxii* n.sp. developed in white rats 15 days after the ingestion of metacercariae found by Biocca & leRoux in specimens of *Physa*, *Limnaea* and *Bulinus* in Sardinia [see also Helm. Abs. 22, No. 81a]. The new species, which has 43 cephalic spines, differs from *E. syrdariense* and *E. syrdariense aquaticum* (which is probably an independent species) by having a bipartite seminal vesicle, and from *E. elegans* by the unequal size of the individual angle spines. The natural definitive host is probably a bird. The six distinguishing characters of the echinostomid genera, as presented by Mendheim (1940), are discussed. P.M.B.

(310b) Biocca & Bronzini describe and figure *Uncinaria thapari* n.sp. from the small intestine of an *Ailurus fulgens* which died in the Rome Zoo. In *U. criniformis* (which the authors consider to be distinct from *U. stenocephala*) the dorsal incision in the buccal capsule is narrower and deeper than in the new species. In *U. thapari* the three lateral rays divide from a relatively short trunk; the terminal papillae of the postero-lateral and medio-lateral rays are further apart, and those of the externo-lateral and medio-lateral rays are closer together than in *U. criniformis*. The externo-lateral ray is smaller than in *U. criniformis*. P.M.B.

311—Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale in Milano.

- a. PUJATTI, D., 1953.—“Ospiti intermedi di *Spirocerca lupi* (Rudolphi, 1809) nel Sud India (Nematoda).” 92 (1), 30-32.

(311a) The intermediate hosts of *Spirocerca lupi* numbering 21 in all are listed. The cysts are whitish, almost round, 1 mm.-2 mm. in diameter and are usually situated in the serous coat of the intestine and the mesentery. The larva is coiled and measures on the average 3 mm. in length. R.T.L.

312—Australian Journal of Agricultural Research.

- a. COLBRAN, R. C., 1953.—“Problems in tree replacement. I. The root-lesion nematode *Pratylenchus coffeae* Zimmerman as a factor in the growth of replant trees in apple orchards.” 4 (4), 384-389.
- b. LUDBROOK, W. V., BROCKWELL, J. & RICE MAN, D. S., 1953.—“Bare-patch disease and associated problems in subterranean clover pastures in South Australia.” 4 (4), 403-414.

(312a) Colbran states that *Pratylenchus coffeae* Zimmerman is common in the apple orchards of the Stanthorpe district, Queensland where its attack on unuberized fibrous roots is responsible for considerable ill health of apple trees. D-D mixture or formalin controlled the pest in pot tests. No apple root-stocks tested proved to be immune to the parasite. J.B.G.

(312b) Of three diseases of subterranean clover in the Coonalpyn Downs two are fungal in origin and one is due to root-knot nematodes. The last has been observed in two limited areas where the clover is killed. Other plants attacked are *Bromus* spp., barley grass, lucerne, *Cirsium lanceolatum* (L) Scop., *Vitadinia triloba* (Gaudich.) DC., and *Erechtites quadridentata* (Labill.) DC. *Heterodera major* on wheat and oats and *Pratylenchus pratensis* on numerous plant species were also observed. M.T.F.

313—Australian Journal of Science.

- a. MACKERRAS, I. M. & MACKERRAS, M. J., 1953.—“Problems of parasitology and entomology in Australia. A report prepared for the Pan Indian Ocean Science Congress, 1954.” 15 (6), 185-189.

(313a) In a review of parasitological problems in Australia, it is pointed out that as the Australian vertebrate fauna is distinctive, a full knowledge of its endoparasites, their life-histories and vectors, is a most important need. Medical parasitology is of relatively minor practical importance. Filariasis is declining to a vanishing point in urban areas. On the other hand, the parasites of domestic animals in Australia are at least as important as bacterial and virus diseases combined. Onchocerciasis in cattle is regarded as essentially an academic problem as it is difficult for the authors to see how a knowledge of the yet unknown vectors would improve control. In agricultural parasitology the greatest need is considered to be the development of an efficient method of applying soil fumigation for the control of nematode infections of plants which, in Australia, are economically important. R.T.L.

314—Berliner und Münchener Tierärztliche Wochenschrift.

- a. FRAEDRICH, G., 1953.—“Bekämpfung von Nematoden-Invasionen bei Tieren mit einem keratinolytischen Ferment (NEMATOLYT).” 66 (23), 392-393. [English summary p. 393.]

(314a) Fraedrich has confirmed, by his own experiences in treating 70 dogs for nematode infections [unspecified], the favourable results obtained by other workers with the keratinolytic enzyme Nematolyt. A dosage of 0.5 gm. to 1.0 gm. per kg. body-weight is recommended but even a greatly increased dose caused no harmful effects. The substance is usually administered in dragee form but where (as in the case of some young animals) there is difficulty in swallowing the dragees they should be pulverized and mixed with the feed. A.E.F.

315—Biochemische Zeitschrift.

- a. ČMELIK, S. & BRISKI, B., 1953.—“Untersuchungen über Eiweissfraktionen von *Taenia echinococcus*.” 324 (2), 104-114.

316—Boletín de Información. Consejo General de Colegios Veterinarios de España.

- a. VICENTE, S., 1953.—“Verminosis gástricas del cerdo.” Suplemento Científico, 7 (36), 179-190.

(316a) In Spain, verminous gastritis in pigs is due to the Spiruridae *Physocephalus sexalatus*, *Simondsia paradoxa*, *Ascarops strongylina* and *Hyostongylus rubidus*. In a series of tables, the author's measurements of the various anatomical features of each of these species are compared with those reported by López-Neyra (1951) in Spain and by observers in other countries. Their presence in various Spanish provinces is noted. The incidence may reach 40%. The inflammatory changes in the stomach associated with their presence are briefly described. R.T.L.

317—Boletín de Informaciones Parasitarias Chilenas.

- a. NEGhme, A., SILVA, R. & RODRÍGUEZ, L., 1953.—“Datos sobre hidatidosis humana en 1952.” 8 (3), 54-55. [English summary p. 55.]
 b. PRATS, F., FAIGUENBAUM, J., GONZÁLEZ RIOSECO, H. & AWAD, T., 1953.—“Urticaria crónica por distomatosis hepática.” 8 (3), 55-57.

(317a) During 1952 the number of new cases of hydatidosis which were treated in Chilean hospitals was 506. The average length of stay was 52 days and the death rate was 6.72%. R.T.L.

318—Boletín Informativo. Ministerio de Ganadería y Agricultura, Uruguay.

- a. RODRIGUEZ GARCÍA, J. A., 1953.—“Lucha contra la lombricosis. Parasitosis gastro-intestinales.” 10 (462), 4.
- b. RODRIGUEZ GARCÍA, J. A., 1953.—“Lucha contra la lombricosis. Aplicación de los antihelmínticos en los lanares.” 10 (463), 4-5.
- c. PERDOMO, R., 1953.—“Lucha contra la lombricosis. Parasitosis bronco-pulmonares.” 10 (465), 5, 12.
- d. RODRIGUEZ GARCÍA, J. A., 1953.—“Lucha contra la lombricosis. Parasitosis del ganado.” 10 (473), 7, 10.

319—Boletín de la Oficina Sanitaria Panamericana.

- a. MAZZOTTI, L., 1953.—“Triquinosis en México.” 35 (4), 418-420. [English summary p. 420.]

(319a) In Mexico, foods are generally well cooked but a sausage called “chorizo” is prepared with raw meat, vinegar and other condiments. When 211 samples obtained from different localities were fed to rats, two only gave rise to trichinelliasis. In the city of Mexico, 30% of the cats are infected. The infection in pigs is only 0.03%. In man, severe cases are rare. R.T.L.

320—Bollettino di Zoologia Agraria e Bachicoltura.

- a. PUJATTI, D., 1953.—“*Ascaridia galli*, Schrank in *Gallus domesticus* L. nel Sud-India.” 19 (2), 109-112.

321—Brasil-Médico.

- a. PESSÔA, S. B., 1953.—“Sôbre o valor da reação de formol-gel no diagnóstico da esquistosomose mansônica.” 67 (8/9), 125-128. [English summary pp. 127-128.]

(321a) Pessôa does not agree with Gelfand that in schistosomiasis the formol-gel test and the intracutaneous reaction have the same diagnostic value. In 1952 Pessôa & Barros, using antigen from adult *Schistosoma mansoni*, obtained a positive reaction in 87.5% of the children and 96.8% of the adults tested; but of the 90 cases in which the author has tried the formol-gel test, only 23.3% gave positive results. In those with intestinal symptoms only, the reaction was positive in 14.2%. Where there was hepatomegaly it was 26.1%. In cases of enlargement of the liver and spleen with compensated cirrhosis it was 28.5% and with decompensated cirrhosis, 46.1%. R.T.L.

322—British Medical Journal.

- a. CRUICKSHANK, R., 1953.—“Taking swabs.” Year 1953, 2 (4845), 1095-1097.
- b. WHITE, R. H. R. & STANDEN, O. D., 1953.—“Piperazine in the treatment of threadworms.” [Correspondence.] Year 1953, 2 (4848), 1272-1273.
- c. RIBEIRO, A. L., 1953.—“A case of dracunculiasis (guinea-worm) in Nairobi.” Year 1953, 2 (4849), 1310.
- d. WATSON, J. M. & MAC KEITH, R., 1953.—“Taking swabs for ova of parasites.” [Correspondence.] Year 1953, 2 (4849), 1324.
- e. SIMS, S. R., 1953.—“Piperazine in the treatment of threadworms.” [Correspondence.] Year 1953, 2 (4851), 1432.

(322a) Various kinds of swabs, nasal, nasopharyngeal, laryngeal, eye, ear, skin, vaginal, cervical and perineal are described. The perineal swab for collecting scrapings for threadworm ova consists of a glass rod with a cellophane swab attached by a rubber band and enclosed in a glass tube. When removed for microscopical examination, the cellophane is placed faeces side downward on a drop of N/10 sodium hydroxide. R.T.L.

(322b) Mild side effects occurring in some adult cases of enterobiasis after treatment with piperazine hydrate syrup included giddiness, lack of co-ordination, sickness, inability to focus vision and a sense of detachment. These effects are attributed to excessive dosage

resulting from variations in the size of the tablespoon in which the dose was measured. When filled to the maximum with the syrup, the contents of nine different spoons varied from 6 drachms 10 minims to 9 drachms 50 minims. It is recommended that the weight of the patient must be taken into consideration and the prescribed dose measured in a graduated medicine glass.

P.M.B.

(322c) A *Dracunculus medinensis* was seen in the foot of an Indian carpenter in Nairobi. Nine and a half months previously the patient had visited a village near Jamnagar in India where dracontiasis is prevalent. While there he had drunk unboiled well water.

R.T.L.

(322d) The swab for collecting threadworm ova described by Cruickshank [for abstract see No. 322a above] has certain disadvantages. It is less simple and less reliable than adhesive cellophane tape which can be used by the patient at home before the perineum is washed.

R.T.L.

(322e) Sims briefly reports some toxic effects in a patient who, in error, had taken about 6 gm. of piperazine instead of 4.4 gm. daily for a week for the treatment of threadworm.

R.T.L.

323—British Veterinary Journal.

- a. SOLIMAN, K. N., 1953.—“Studies on the bionomics of the preparasitic stages of *Dictyocaulus viviparus* with reference to the same in the allied species in sheep '*D. filaria*'.” 109 (9), 364–381.
- b. INNES, J. R. M., 1953.—“The possible occurrence of cerebrospinal nematodiasis in goats in India.” 109 (11), 451–455.
- c. PARNELL, I. W., DUNN, A. M. & MACKINTOSH, G. M., 1953.—“Some observations on the helminth parasites of Scottish hill cattle.” 109 (11), 456–463.

(323a) Soliman has carried out a series of carefully controlled experiments on the eggs and larvae of *Dictyocaulus viviparus* and *D. filaria*. In both species hatching appeared to be by purely mechanical means; bile at concentrations of 1%, 3% and 5% had no effect on hatchability; all eggs hatched in 36–48 hours at 37°C. but took 132–144 hours at 8°C. Tap-water aerated and kept free from bacterial contamination proved to be the most satisfactory culture medium. From samples taken from animals which were killed it was shown that hatching takes place in the first part of the alimentary canal and is normally completed before the ingesta reach the colon. Third-stage larvae were neither thermotropic nor skin-penetrating. Only first-stage larvae were positively phototropic. All first-stage larvae were killed by three hours desiccation; third-stage larvae were the most resistant to drying especially those of *D. filaria*. First-stage larvae but not second or third were killed when exposed to a temperature of –5°C. Third-stage larvae only showed migratory powers and these were much more marked in *D. filaria* than in *D. viviparus*.

S.W.

(323b) Cerebrospinal nematodiasis may yet prove to have a multiplicity of nematodal causes. In India, a seasonal paralytic disease in sheep and goats is widely distributed. In the brain and parts of the spinal cord from a paralysed goat from Orissa, Innes found microscopic, patchy leptomeningitis, one in the frontal, cerebral region, the other in the upper cervical cord with secondary descending degeneration of motor tracts. The lesion had all the hall marks of proved cases of cerebrospinal nematodiasis except for the actual finding of a nematode in the lesion.

R.T.L.

(323c) Results of an examination of faecal samples from cattle on 16 Scottish hill farms between Wester Ross, East Inverness-shire and the Borders are tabulated and show that gastro-intestinal helminth infections in adult cattle are too light to do harm but they may be sufficiently heavy to cause loss of condition in young stock. *Bunostomum phlebotomum* was one of the commonest species present. The occurrence in hill cattle of *Fasciola hepatica*, although less pathogenic than in sheep, may be of importance in providing a reservoir of this infection where both cattle and sheep are run together.

R.T.L.

324—Bulletin de l'Académie Nationale de Médecine. Paris.

- a. DESCHIENS, R., LAMY, L. & ESTIVAL, J., 1953.—“Action de la cortisone dans l'éosinophilie parasitaire.” 3e Série, 137 (19/20), 306-308.

(324a) At Brazzaville eleven patients, with an eosinophilia ranging from 23% to 61% resulting from parasitic infections, were given seven intramuscular injections of 100 mg. of cortisone at intervals of 48 hours. Blood counts before, during and after treatment showed that the effect of the drug in reducing the eosinophilia was negligible, in contrast to the striking reduction obtained in cases of tropical eosinophilia. It had no effect on a non-parasitized person with an eosinophilia varying from 1% to 4%.

P.M.B.

325—Bulletin of the Calcutta School of Tropical Medicine.

- a. BHADURI, N. V. & SANYAL, P. K., 1953.—“Oil of cashew nutshell in the treatment of intestinal helminthiasis of man.” 1 (1), 16-17.
b. BHADURI, N. V. & CHOUDHURY, A. B., 1953.—“Mepacrine in the treatment of human tapeworm infections.” 1 (1), 19-20.

(325a) Oil prepared from the shells of *Anacardium occidentale* proved an effective and harmless anthelmintic in 90 cases. Seventeen out of 24 cases of *Ascaris* infection were cured by one treatment with a dose of 5 gm.-6 gm. for adults, of 4 gm. for children from 10 to 14 years old and of 2.5 gm.-3 gm. for those between four and nine years of age. There was a 70%-90% reduction in the egg count of four of the cases. Twenty out of 48 cases of hookworm infection treated with 4 gm.-6 gm. of the oil were completely cured by one treatment and in 13 more there was a reduction in egg count of 60%-90%. Of four cases of *Hymenolepis nana* infection three were cured by a single dose of 3 gm. of the oil and one case of *Fasciolopsis buski* infection was cured by two treatments.

R.T.L.

(325b) Mepacrine to the total of 0.8 gm. per adult and 0.5 gm.-0.6 gm. for children according to age, given on an empty stomach in four equally divided doses at intervals of ten minutes, followed two hours later by a saline purge, removed the heads in 10 cases of *Taenia saginata* and *T. solium*. Three more had not passed any segments for four months after treatment.

R.T.L.

326—Bulletin et Mémoires de la Société Médicale des Hôpitaux de Paris.

- a. CATTAN, R., FRUMUSAN, P. & LUMBROSO, P., 1953.—“Hémiplégie transitoire, épisode initial d'une distomatose hépatique.” 4e Série, 69 (19/20), 676-679.

327—Bulletin of the National Institute of Agricultural Sciences. Chiba. Series G. Animal Husbandry.

- a. OSHIO, Y., 1953.—[Studies on the anaemia by *Haemonchus contortus*. II. On the mechanism of the anaemia.] No. 5, pp. 59-64. [In Japanese: English summary p. 64.]

(327a) Experiments to determine the mechanism by which anaemia is produced when serum of animals suffering from haemonchiasis is injected into rabbits gave the following results: (i) the haemolysis test of the “*Haemonchus* serum” was negative against erythrocytes of rabbits as well as of sheep, indicating that the anaemia was not due to the haemolysin in the serum; (ii) when the “*Haemonchus* serum” was injected into rabbits from six to nine times, at three-hourly intervals, there were severe symptoms of anaemia indicating a 40%-50% decrease in the erythrocytes, and the animals died in from 26 hours to 13 days; (iii) if previously splenotomized or injected intravenously with Chinese ink to obstruct the reticulo-endothelial system, the rabbits showed no anaemia after injection with “*Haemonchus* serum”. When rabbits were treated orally with carbon tetrachloride to damage the liver before the serum injection, anaemia resulted as in untreated rabbits. It is suggested that the anaemia induced by the injection of the “*Haemonchus* serum” was closely connected with the function of the reticulo-endothelial system, especially of the spleen.

R.T.L.

328—Bulletin de la Société de Pathologie Exotique.

- a. LE GAC, P., LEMAIGRE, C. & TOURNIER-LASSERVE, C., 1953.—“Rôle du facteur humain dans l'épidémiologie de la bilharziose vésicale en Oubangui-Chari (A.E.F.).” **46** (5), 685-688.
- b. PAYET, M., BERTE, E., CAMAIN, R. & PENE, P., 1953.—“Accidents cardiaques aigus de la bilharziose à *Schistosoma haematobium* à propos de deux observations.” **46** (5), 688-692.
- c. GARRIGUE, M., 1953.—“Extrait de compte rendu d'une enquête générale sur les bilharzioses à Bamako.” **46** (5), 693-695.
- d. BUTTNER, A., 1953.—“Sur l'aptitude de certains rongeurs sauvages à devenir réservoirs de virus de la bilharziose intestinale humaine. (Note préliminaire.)” **46** (5), 696-700.
- e. LAMY, L., 1953.—“La bilharziose dans la région de Brazzaville.” **46** (5), 700-702.
- f. CROSNIER, R., DARBON, A., DULAC, J. F. & QUILICCHINI, F., 1953.—“Filariose Loa et amibiase, incidences du traitement par la notézine.” **46** (5), 702-708.
- g. PELLISSIER, A., 1953.—“Le granulome lipidique dans la structure histologique des nodules sous-cutanés à *Onchocerca volvulus*.” **46** (5), 709-710.
- h. SENDRAL, R. & CHARBIT, C., 1953.—“Note sur la spirocercose canine à Rabat.” **46** (5), 711-713.
- i. COUTELEN, F., BIGUET, J. & LEFRANÇOIS, J., 1953.—“Remarques sur l'emploi comme oxyuricide du sulfate d'aluminium ortho-oxyquinoléine.” **46** (5), 713-716.
- j. DESCHIENS, R., POIRIER, M. & LAMY, L., 1953.—“Diversité des réponses des éosinophiles aux hormones cortico-surrénale et corticotrope en fonction de leur étiologie.” **46** (5), 716-720.
- k. PAUTRIZEL, R. & GOSMAN, T., 1953.—“Intérêt de l'étude des variations de l'éosinophilie sanguine dans le diagnostic de l'échinococcose humaine.” **46** (5), 721-723.
- l. SCHWETZ, J., 1953.—“Sur les causes de la confusion dans la nomenclature des mollusques transmetteurs des bilharzioses en Afrique Ethiopienne et sur la nécessité et les moyens d'y mettre fin.” **46** (5), 765-783.
- m. RANSON, G., 1953.—“Observations sur les Planorbidae africains.” **46** (5), 783-810.
- n. DESCHIENS, R., LAMY, L. & MAUZÉ, J., 1953.—“Répartition géographique et fréquence de la bilharziose intestinale en Guadeloupe.” **46** (5), 810-819.
- o. FRAGA DE AZEVEDO, J., 1953.—“Les bilharzioses humaines au Sud du Save (Mozambique).” **46** (5), 820-832.

(328a) Le Gac *et al.* have studied the epidemiology of schistosomiasis in the Ubangi-Shari area and note that the division between areas of *Schistosoma mansoni* and *S. haematobium* infections corresponds with the line of demarcation between the animistic tribes (Mandjias and Bandas) and the islamic tribes (Saras and Kabas). In the forested region of La Lobaye, where *S. mansoni* is rare and *S. haematobium* was previously absent, 286 cases of schistosomiasis haematobia were diagnosed in 1951 following the arrival in January of two infected Saras as labourers. In the Lower Koto area schistosomiasis mansoni is common but no cases of schistosomiasis haematobia had been discovered before September 1951, when two cases were detected; the first was a child of about 11 years, the son of a Haoussa merchant from the Chad and the second a driver originating from the Chad region. By the end of December 1951, twenty new cases had been diagnosed, followed by 25 schoolchildren shown to be infected in February 1952 and a further 18 cases in March. The authors are of the opinion that the creation of new foci is attributable to the constant movement of the population. s.w.

(328b) Payet *et al.* describe the symptoms and post-mortem findings in two cases of blockage of the right heart by *Schistosoma haematobium*. s.w.

(328c) Garrigue has found schistosomiasis haematobia to be widespread in Bamako and its immediate neighbourhood. Two thousand persons were examined and the percentage infections by age and sex are tabulated; the maximum infection found was in children between 10 and 11 years and was 74% in boys and 46% in girls. Spontaneous cure is common. Schistosomiasis mansoni is less common and was found in only 2%-5% of patients examined for intestinal disorders. Double infections were not rare; 2.5% of the children infected with *Schistosoma haematobium* were also infected with *S. mansoni*. s.w.

(328d) Buttner has studied the susceptibility of a number of small rodents to *Schistosoma mansoni*. Three strains of *S. mansoni* were used, the first from Egypt, the second from French Guinea and the third from Brazil. *Glis glis* and *Eliomys quercinus* were susceptible to

the first strain; *E. quercinus*, *Apodemus sylvaticus*, *Rattus norvegicus*, *Evotomys glareolus* and *Cricetus auratus* were susceptible to the second strain but guinea-pigs and wild rabbits were resistant; *Citellus citellus*, *Cricetus auratus*, *Meriones libycus* and a guinea-pig were susceptible to the Brazilian strain. s.w.

(328e) During a stay of about seven months in Brazzaville, Lamy was unable to find any autochthonous cases of schistosomiasis in the town or for a radius of 100 km.-200 km. around it. He examined urine and more than 2,000 faecal samples and found *Schistosoma mansoni* in two natives from the Chad and 14 from Ubangi, and *S. haematobium* in 64 natives from the Chad and two from Ubangi. This confirms reports of high endemicity in these areas. The absence of schistosomiasis from Brazzaville is explained by the absence of any intermediaries. Lamy found that aquatic fauna was very scarce in this area and is of the opinion that an investigation of the physical and chemical properties of the water and a comparison with those of the water in neighbouring areas where schistosomiasis is endemic would be of great interest. s.w.

(328f) Crosnier *et al.* describe the pulmonary and hepatic symptoms which occurred in a patient suffering from latent loaiasis and chronic amoebiasis when treated with notezine. There was a history of similar pulmonary symptoms occurring some years previously following an earlier course of notezine. The symptoms ceased when notezine was discontinued after the fourth day. The loaiasis was subsequently treated with a conessine derivative and there were no side effects. s.w.

(328g) Pellissier has studied nodule formation in 16 cases of onchocerciasis and describes the histology of the three stages he observed. In the first stage there was a normal inflammatory reaction around the group of filariae. In the second stage the fibroblastic reaction commences at the edges; in the centre, as well as lymphocytes, plasmocytes and large round cells, he observed a number of giant cells with acidophilic cytoplasm and numerous nuclei. The third stage shows the liquefaction of the parasites and increasing fibrous tissue and it was at this stage that Pellissier observed in three cases the formation of lipidic granuloma, i.e. the appearance of spongy cells with frothy, vacuolated cytoplasm containing various lipoids. The author was unable to determine why this process does not occur more frequently. s.w.

(328h) Of 55 dogs examined post mortem by Sendral & Charbit in Rabat, 23 had nodules of *Spirocerca sanguinolenta*. No dog less than six months old was infected, making the infection rate in adults 62%. In every case nodules were found on the oesophagus; additional nodules were found once on the mediastinum, four times on the aorta and once on the stomach. s.w.

(328i) Although the observations of Coutelen *et al.* confirm that Aloxyn is easy to administer and is well tolerated even by very young children, they did not find it efficacious in the treatment of enterobiasis. Of 25 boys treated and kept under strict observation only six were cured, and these only after a second course of treatment; a third course did not result in any more cures. Aloxyn appears to be most effective in young children. s.w.

(328j) Deschiens *et al.* have made a comparative and experimental study of the eosinophilia caused by helminth infections and true tropical eosinophilia. Tropical eosinophilia was reducible by cortisone but helminthic eosinophilia, except in two cases of ancylostomiasis, was not. Eosinophilia produced in guinea-pigs by injection of *Fasciola hepatica* extract was irreducible as was that in three cats infected with *Toxocara* but of two cats with *Dipylidium*, one showed a reducible and the other an irreducible eosinophilia. Six guinea-pigs were infected with a dye in an attempt to produce "tropical" eosinophilia; of these three were then injected with cortisone and three with ACTH, both of which reduced the eosinophilia. From a comparison of the suprarenals of guinea-pigs treated with *F. hepatica* extract with those treated with the dye it appears that in the first case there is congestion and degeneration of the glandular cells of the cortex and in the second congestion of the medulla and hyperplasia of the

reticulate zone. The authors conclude that it is, to some extent, possible to distinguish between the types of eosinophilia by means of cortisone and ACTH, especially if given in repeated doses over a period, that helminth infections cause histopathological and functional changes in the glands and that a number of factors including differences in toxicity between helminthic and non-helminthic substances, diversity of species of parasites, intensity of infection and localization in the host also play some part. S.W.

(328k) Pautrizel & Gosman find that when sterile hydatid antigen is injected intradermally into an infected person there is a fall of approximately 50% in the circulating eosinophils during the hours following the injection. This test is positive even when there is only a slight local reaction but when there is a doubtful skin reaction which is not accompanied by eosinopenia, the test should be regarded as negative. S.W.

(328l) Schwetz reviews and quotes examples of the terrible confusion existing at present in the nomenclature of the intermediate hosts of schistosomes in Africa. He attributes this to two main causes, firstly that malacology and conchyology have become separate subjects and identification is usually on features of the shell only, and secondly that very little is known of the effect of environment on the development (especially of the shell) of the snails. This results in the identification of snails as separate species when they are in fact only oecological variations of one. There appear to be two ways of ending this confusion. The first, proposed by Schwetz, is a system of nomenclature on an oecological basis, e.g. *Planorbis fluvianilis* for those from streams and a specific name for those from each of the great lakes, such as *P. alberti* for those from Lake Albert. He foresees opposition on the law of priority and forestalls this with a discussion of the names *P. pfeifferi*, *P. smithi*, *P. sudanicus*, *P. tanganyicensis*, *P. choanomphalus* and *P. stanleyi*. The second suggestion which has been made is that malacologists should be asked to determine which are true specific differences by examination of the anatomy of the snails, and which of the names actually correspond with true species. Schwetz is of the opinion that while this would be of interest zoologically, it would offer little practical help to workers on schistosomiasis. It is stated, in a post-script, that although this paper is devoted to the Planorbidae, similar confusion and difficulties are met with in the classification and nomenclature of the Bulininae. S.W.

(328m) Ranson reviews the literature on the nomenclature and classification of the African Planorbidae and gives special attention to the scheme proposed by Baker in 1945. He annotates, lists synonyms and type localities and in a few instances gives drawings of the internal anatomy, of the following species: *Planorbis pfeifferi*, *P. salinarum*, *P. andersonni*, *P. costulatus*, *P. crawfordi*, *P. leucochilus*, *P. misellus* and *P. natalensis* from South Africa; *P. choanomphalus*, *P. smithi*, *P. stanleyi*, *P. bridouxii*, *P. sudanicus*, *P. apertus*, *P. avakubiensis*, *P. gibbonsi*, *P. kigeziensis*, *P. kisumiensis*, *P. lamyi* and *P. sperabilis* from Equatorial Africa; *P. gaudi* n.sp. (of which a description will appear shortly), *P. coretus*, *P. dorri*, *P. fouladougouensis*, *P. toukotoensis*, *P. germaini* n.sp., *P. tetragonostoma*, *P. chudeaui*, *P. gardci*, *P. tilhoi*, *P. adowensis*, *P. bozasi*, *P. cecchii*, *P. herbini*, *P. ruppellii*, *P. exustus* var. *maculatus*, *P. socotrensis*, *P. abyssinicus*, *P. aethiopicus* and *P. cockburni* from Central Africa; for North Africa, Egypt and Madagascar there is a list of names. S.W.

(328n) Deschiens *et al.* have studied the distribution of *Planorbis glabratus* in Guadeloupe and its dependencies and the rate of infection with *Schistosoma mansoni* in different localities. They found that the rate of infection in *P. glabratus* was the most accurate method of determining foci of *S. mansoni* infection. The main foci are at Pointe-à-Pitre, Basse-Terre, Baie-Mahault, Le Lamentin, Sainte-Rose, Les Abymes and Sainte Anne; the average infection in man was 7.8%. Although *P. glabratus* was widespread in three of the smaller islands (Marie-Galante, La Désirade and Saint-Martin) no infection with *S. mansoni* was found. The authors are of the opinion that eradication of schistosomiasis by means of destroying the snails is perfectly practicable in Guadeloupe. S.W.

(328 o) Fraga de Azevedo reports on schistosomiasis in the province of Sul do Save in Mozambique. The incidence of schistosomiasis haematobia varied from 2% to 100% (average 61.5%) in different localities, a total of 9,283 natives of whom 7,863 were between the ages of 5 and 15 years being examined. Schistosomiasis mansoni was more widespread throughout the province but the infection rate was lower and the disease more concentrated in limited zones; the average incidence was 11.86% of 2,841 persons between six and thirty years of age. The incidences according to age and sex are illustrated by histograms and there is an account of investigations of the blood picture in infected and non-infected individuals. Maps illustrate the distribution of *Physopsis africana* and *Biomphalaria pfeifferi*. Although it is comparatively simple to determine the incidence the difficulties of finding and applying suitable control measures are great. S.W.

329—Bulletin. Tobacco Research Board of Southern Rhodesia.

- a. STINSON, F. A., 1953.—“Report of progress 1951-1953.” No. 3, 48 pp.

(329a) In Southern Rhodesia, time of planting affects the value and yield of flue-cured tobacco. Root-knot eelworms in the soil are relatively few in number in October and November and are absent from the top layer. Tobacco planted in October and November has a better chance of becoming established and developing a root system than that planted earlier. A chart shows the relationship between time of planting and eelworm damage. Root rot symptoms similar to those associated with damage by non gall-forming species in North America were recognized on tobacco farms during 1951-52. Practicable control measures are early planting, replenishment of soil organic matter, proper fertilization and fumigation, all of which reduce losses. R.T.L.

330—Canadian Journal of Comparative Medicine and Veterinary Science.

- a. GLOVER, J. S., 1953.—“Two unusual cases in poultry.” 17 (10), 430.
b. OLIVER, W. T., 1953.—“Studies in phenothiazine. I. Some *in vitro* effects of phenothiazine on *Heterakis gallinae*.” 17 (11), 435-447.

(330a) In a pheasant received at the Ontario Veterinary College, nodules in the caeca were associated with severe and extensive enteritis. They contained *Heterakis isolonche*. The occurrence in Canada of this parasite has not been reported previously but T. Lloyd Jones, in a personal communication to the author, states that it occurred in pheasants in the zoo at Calgary, Alberta, in 1945. R.T.L.

(330b) Phenothiazine was found to be inactive *in vitro* against *Heterakis gallinae*. This inactivity remained unchanged when bile or a commercial wetting agent was added or when the oxygen tension or pH of the medium was lowered. Ova removed from the uteri of female *H. gallinae* which had been exposed to the anthelmintic for 72 hours were capable of development. Non-embryonated, extra-uterine ova exposed to phenothiazine for 24 hours were incapable of embryonation but embryonated ova remained viable. R.T.L.

331—Československá Biologie.

- a. ERHARDOVÁ, B. & RYŠAVÝ, B., 1953.—“Vliv vnějšího prostředí na předinvasní stadia plicního červa *Müllerius capillaris* Müller, 1889.” 2 (1), 33-36.

(331a) The authors report the occurrence of *Muellerius capillaris* in 622 out of 2,730 sheep and goats (22.7%) and *Dictyocaulus filaria* in 181 (6.6%). They investigated the influence of high and low temperatures on the first-stage larvae of *Muellerius capillaris* and found that they can withstand -15°C. for 115 days and -26°C. for 28 days. They also found that larvae are resistant to desiccation and only a very small amount of moisture is necessary for their life. C.R.

332—Comptes Rendus des Séances de l'Académie des Sciences. Paris.

- a. CAVIER, R. & SAVEL, J., 1953.—“ Sur la présence d'une phosphorylase chez l'ascaris du porc, *Ascaris lumbricoides* Linné, 1758.” 237 (1), 99–101.
- b. FAURÉ-FRÉMIET, E., EBEL, J. P. & COLAS, J., 1953.—“ Les inclusions protéiques de l'oeuf de *Parascaris equorum*.” 237 (12), 629–631.

(332a) Cavier & Savel found that phosphorylase preparations from tissues of *Ascaris lumbricoides* showed a maximum activity at pH 5.8, both for the hydrolysis and synthesis of glycogen. Preparations from testes showed lower activities than those from other tissues; no activity was obtained from the body fluid.

W.P.R.

(332b) Fauré-Frémiot *et al.* have examined the nature of the “boules hyalines” of the oocytes of *Parascaris equorum*. Cytochemical tests for proteins were positive and the chromatographic examination of the hydrolysed isolated “boules hyalines” showed the presence of a number of amino acids, proline predominating.

W.P.R.

333—Comptes Rendus de Séances de la Société de Biologie. Paris.

- a. BRUMPT, L. C. & SANG, H. T., 1953.—“ Diapause des ankylostomes chez les grands anémiques.” 147 (11/12), 1064–1066.
- b. GOVAERT, J., 1953.—“ Sur la teneur en acide désoxyribonucléique du noyau des cellules vitellogènes chez *Fasciola hepatica*.” 147 (15/18), 1494–1496.
- c. SCHWETZ, J., 1953.—“ Sur un cas d'infection accidentelle d'une souris blanche par trois schistosomes.” 147 (19/20), 1646–1648.

(333a) Brumpt & Sang conclude, contrary to general practice, that in extreme cases of hookworm anaemia better results are obtained by giving anthelmintic treatment at the same time as treating the anaemia. In severe cases the hookworms—probably because of lack of nutriment in the blood—are unable to mature and at this stage they are more easily removed. As soon as the condition of the blood improves the hookworms mature, as shown by the progressive increase of eggs in the faeces of patients under conditions precluding reinfection. The authors recommend the careful use of tetrachlorethylene, given in a single dose of 3 gm. to 5 gm., with or without purging depending on the patient's condition.

S.W.

(333b) Govaert finds that the physiological state of the vitelline cells in *Fasciola hepatica* varies not only in different specimens but in cells in the same transverse sections. While in the glands the cells are in a state of intense activity, shown by the presence of large amounts of desoxyribonucleic acid around the nucleus and the appearance of large granules which finally fill up the cytoplasm. These granules are of two kinds, yolky material and shell-forming material. On leaving the glands the metabolic activity of the cells comes to an end and the appearance of the nucleus remains unchanged. Three histograms illustrate the amount of desoxyribonucleic acid in the vitelline cells at different stages. There is considerable evidence of polyploidy in a proportion of the nuclei.

S.W.

(333c) A laboratory mouse which had been immersed in water containing cercariae discharged by *Physopsis* collected from the rivulet Kabwe at Mokambo in the Belgian Congo died 19 days later. At autopsy, the liver was found to contain males of *Schistosoma haematobium*, a female *S. rodhaini* and eggs of *S. haematobium*, *S. rodhaini* and *S. mansoni*. The occurrence of *S. rodhaini* and *S. mansoni* is explained by the fact that the water used in the experiment came from the river Lubembe in which the *Planorbis* snails are naturally infected with cercariae of these two species.

R.T.L.

334—Cornell Veterinarian.

- a. KRULL, W. H. & MAPES, C. R., 1953.—“ Studies on the biology of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). IX. Notes on the cyst, metacercaria, and infection in the ant, *Formica fusca*.” 43 (3), 389–410.

(334a) Krull & Mapes describe the encysted metacercariae of *Dicrocoelium dendriticum* which they obtained from the abdomens of large numbers of *Formica fusca*. The cysts are

oval, normally transparent and from 325μ to 465μ long; they apparently occur only in the abdomen, the maximum number found in a single ant being 128. All metacercariae found were already encysted and although cercarial bodies were found on three occasions in the head or thorax of an ant no other stages in the development were observed. Excystment was induced by digestion in artificial pancreatic juice; the excysted metacercaria is mobile and measures from 0.5 mm. to more than 1 mm. in length. An average of 31% of the ants collected were infected. Feeding experiments with lambs confirmed that they can become infected with *Dicrocoelium dendriticum* by eating infected ants, but the number of adult worms which developed was smaller than was expected. The cause of this mortality in the larvae after ingestion by the definitive host has not been ascertained. Whitlock has shown that rabbits and guinea-pigs can also be infected experimentally. S.W.

335—Deutsche Tierärztliche Wochenschrift.

- a. VOGELSANG, E. G., 1953.—"Beiträge zur Kenntnis der Zooparasiten der Haus- und Wildtiere Venezuelas." 60 (47/48), 529–531.

(335a) Vogelsang gives brief notes on the incidence of a number of helminths in domestic and in some wild animals in Venezuela. R.T.L.

336—Documenta de Medicina Geographica et Tropica. Amsterdam.

- a. FROS, J. & LIQUI LUNG, M. A. V., 1953.—"Sheathless *Microfilaria bancrofti* and eosinophilic granulocytes." 5 (2), 116–122.
 b. TAN KOK SIANG & LIE KIAN JOE, 1953.—"Redescription of *Oesophagostomum apiostomum* (Willach, 1891, Railliet and Henry, 1905) from man and monkeys in Indonesia." 5 (2), 123–127.
 c. BLUMBERG, B., McGIFF, J. & GUICHERIT, I., 1953.—"A survey of intestinal parasites in the schoolchildren of Moengo, Surinam, 1950." 5 (2), 137–140.

(336a) When the atmospheric humidity was high, blood films containing microfilariae of *Wuchereria bancrofti* did not dry if kept under cover. After ten hours, it was observed that some of the microfilariae had partially, and others completely, emerged from their sheaths. This effect can be reproduced by placing the slides on moist filter paper in a petri dish immediately after the films are made. It was also observed that many eosinophilic granulocytes clustered around some of the microfilariae which had wholly or partially emerged and that in some instances the accumulation of the granulocytes was so dense that the sheathless microfilariae were almost completely obscured. Changes in osmotic pressure, surface tension of the medium or freezing and subsequent thawing of the films had no appreciable effect. In an addendum it is stated that Bergman's (1932) conclusions agree with those reported in this paper. R.T.L.

(336b) The morphology of *Oesophagostomum apiostomum* found in monkeys and man in Indonesia is described. The measurements of the most important structures and those given by earlier workers for specimens of this species found in man and monkeys in Africa are tabulated. The few specimens so far found in man are less mature and smaller than those from monkeys but are considered to be morphologically identical, although the pathological lesions differ. In man, the worms have been found in nodules only in the submucosa of the intestine whereas in monkeys the nodules occur in the submucosa, muscular tissue and subserosa. The external leaf-crown consists of ten elements but these are sharply pointed, not rounded as in Ihle's description and Travassos' drawings. There are 20 small, sharply pointed, chitinated elements in the internal leaf-crown, placed in pairs near the base angles of the external leaf elements, as described by Travassos & Vogelsang for *O. zukowski*. R.T.L.

(336c) The helminth incidence in the schoolchildren of the village of Moengo, Surinam, is *Ascaris lumbricoides* 42%, *Necator americanus* 8% and *Trichuris trichiura* 9%. There are adequate facilities for the disposal of excreta but the personal hygiene habits of the children are poor. The relatively low incidence of hookworm is attributed to early detection and treatment in the Moengo Hospital. R.T.L.

337—East African Medical Journal.

- a. ROMBERG, R. G., 1953.—"Intestinal obstruction due to ascariasis." 30 (6), 251-252.
- b. CARTER, F. S., 1953.—"Cerebral cysticercosis. A case report." 30 (7), 295-301.

338—Euphytica. Wageningen.

- a. KORSTEN, L. H. J., SIEBEN, J. W. & VOSKUYL, L., 1953.—"A colorimetric determination of the number of eelworms in a suspension. A new technic to be used in connection with the breeding of resistant clovers." 2 (2), 135-138. [Dutch summary p. 138.]
- b. TOXOPEUS, H. J., 1953.—"On the significance of multiplex parental material in breeding for resistance to some diseases in the potato." 2 (2), 139-146. [Dutch summary pp. 145-146.]

(338a) The number of eelworms in suspension in an aqueous solution of carboxymethyl-cellulose is rapidly estimated by measuring the light absorbed in a colorimeter. The authors claim the method to be more accurate than a method employing dilution and counting. J.B.G.

(338b) This paper is purely concerned with plant breeding. In it Toxopeus discusses the problem of breeding potato varieties resistant to wart disease, blight, and potato root eelworm. In all cases the genes for resistance appear to be dominant but the situation is complicated by the fact that the potato is tetraploid and a given plant may therefore be multiplex (pure recessive, susceptible), simplex, duplex, triplex, or even quadruplex with respect to the resistance factor. The effects of this on the percentage of resistant plants to be expected from various crosses, whether by normal chromosome segregation or by the free recombination of chromatids, is illustrated. The organization of a breeding programme in which resistance to at least three diseases has to be combined with good commercial qualities is simplified somewhat to the extent that multiplex material can be used. B.G.F.

339—Experimental Parasitology. New York.

- a. LINCICOME, D. R., 1953.—"A streptococcal decapsulation test for detection of hyaluronidase activity in animal parasites." 2 (4), 333-340.
- b. READ, C. P., 1953.—"Contributions to cestode enzymology. II. Some anaerobic dehydrogenases in *Hymenolepis diminuta*." 2 (4) 341-347.
- c. DEWITT, W. B., 1953.—"Influence of *Schistosoma mansoni* infections on the eosinophil level of adrenalectomized mice." 2 (4), 358-365.
- d. MALDONADO, J. F. & ASENJO, C. F., 1953.—"The role of pteroylglutamic acid and vitamin B₁₂ on the development of *Nippostrongylus muris* in the rat." 2 (4), 374-379.
- e. KUNTZ, R. E., 1953.—"Demonstration of the 'spreading factor' in the cercariae of *Schistosoma mansoni*." 2 (4), 397-402.
- f. EVANS, A. S., 1953.—"Quantitative demonstration of hyaluronidase activity in cercariae of *Schistosoma mansoni* by the streptococcal decapsulation test." 2 (4), 417-427.
- g. HARWOOD, P. D., 1953.—"The anthelmintic properties of phenothiazine." 2 (4), 428-455.

(339a) The enzyme hyaluronidase depolymerizes hyaluronic acid which is widely distributed as the ground substance supporting connective tissues. It is possible that hyaluronidase may account for the ability of helminth parasites to pass through connective tissue during migration in their hosts. As this substance removes the mucoid capsule of young group A and group C haemolytic streptococci, Lincicome has devised a simple slide method for the qualitative demonstration of its activity in parasites. R.T.L.

(339b) Read presents data which indicate that *Hymenolepis diminuta* possesses a number of enzymes of anaerobic type, viz., pyridine-nucleotide-linked enzymes catalyzing the oxidation of malic, L-glutamic and α -glycerophosphoric acids; he has also demonstrated the presence of fumarase and cytochrome-linked α -glycerophosphoric dehydrogenase. R.T.L.

(339c) Repeated eosinophil counts on adrenalectomized mice infected with *Schistosoma mansoni* showed that the eosinophil level returned to normal rapidly, indicating their inability to respond to prolonged eosinophil-producing stimuli. It is thought that these findings may throw light on some of the inconsistencies reported in the literature. R.T.L.

(339d) Experiments are detailed from which it is concluded that the absence of pteroyl-glutamic acid and vitamin B₁₂ from the diet of white rats does not interfere with the number of *Nippostrongylus muris* arriving in the intestine after subcutaneous inoculation of the larvae, or on their sexual and somatic development. R.T.L.

(339e) In the passage of schistosome cercariae through the skin, the parasite's burrowing activity is augmented by the exudation of enzymes. Definite evidence of the spreading property of a suspension of macerated cercariae of *Schistosoma mansoni* in blue dye followed its intradermal injection into laboratory-raised rabbits. R.T.L.

(339f) The activity of an enzymatic factor extracted from *Schistosoma mansoni* cercariae has been quantitatively measured by volumetric degradation of the hyaluronic acid capsules of a strain of group C, mucoid beta haemolytic streptococci as a function of cercarial concentration. R.T.L.

(339g) The literature of phenothiazine is reviewed under the following headings: (i) evaluation of anthelmintic efficacy, (ii) administration, (iii) fate in the vertebrate body, (iv) effect on the vertebrate body, (v) effect on the parasites, (vi) specific activity, (vii) economic usefulness in sheep, goats, cattle, horses, swine, poultry and other hosts, and in man. The references attached number 206. R.T.L.

340—Extension Circular. North Carolina State College of Agriculture.

- a. GARRISS, H. R., 1953.—“Nematode control in flue-cured tobacco.” No. 374, 15 pp.

341—FAO Plant Protection Bulletin. Rome.

- a. MILLER, P. R., 1953.—“Plant disease situation in the United States.” 2 (1), 7–10.

(341a) In Alabama, a disease of *Hydrangea opuloides* characterized by tip necrosis, scattered necrotic spots and prominent stem hypertrophy, was found to be due to *Ditylenchus* sp. The only previous record of the occurrence of this eelworm in hydrangeas in the U.S.A. was at Salem, Oregon, in 1932. R.T.L.

342—Gartner-Tidende.

- *a. BOVIEN, P. & LINDHARDT, K., 1953.—“Staengelålen (*Ditylenchus dipsaci*) kan angribe Spiseleg.” 69, 374–375.

(342a) A report is given of the first finding in Denmark of onions infested with the stem and bulb eelworm, *Ditylenchus dipsaci*. The symptoms are described. Although a number of fields have been examined, the disease has so far only been found in two places. S.B.

343—Gastroenterologia.

- a. ANON., 1953.—“Eosinophilie et parasitoses.” [Editorial.] 79 (1), 44–45.

(343a) Attention is drawn to an article by Bonnin & Moretti [for abstract see Helm. Abs., 21, No. 260b] emphasizing that eosinophilia due to helminth infections results only from the presence of those species which have a tissue phase in their life-cycle in man, and does not occur in infections with helminths which develop entirely within the alimentary tract. F.M.B.

344—Gazeta Médica Portuguesa.

- a. GARCIA, M. F., MATTOS, A. DE & BÜRGER, H., 1953.—“A ação tenfuga do ácido diiodofenilpropionico.” 6 (2), 355–359. [English & French summaries pp. 358–359.]

(344a) In 12 out of 15 patients with taeniasis (13 with *Taenia saginata* and two with *T. solium*), the complete worm with the scolex was eliminated after treatment with 12 gm. of *B*-(4-hydroxy-3, 5-diiodophenyl)- α -phenyl-propionic acid. Two of the remaining three

were cured after a repetition of the treatment 15 days later, and in one the worm was passed without the scolex. All the cases had previously been treated unsuccessfully with other anthelmintics. There were only slight side effects.

P.M.B.

345—Gunma Journal of Medical Sciences.

- a. YANAGISAWA, R., YAJIMA, F. & UCHIDA, A., 1953.—“On quantitative change of reticulocytes in hookworm carriers by iron shock therapy.” 2 (3), 217-228.

(345a) In hookworm carriers with erythrocyte counts within the normal range but with slightly increased reticulocyte counts iron shock therapy increased both counts, apparently by an acceleration of the medullary function.

R.T.L.

346—Harefuah.

- a. HELLER, H., 1953.—[Schistosomiasis among immigrants from Near East.] 44 (11), 243-245. [In Hebrew: English & French summaries p. 245.]
 b. GILON, E., 1953.—[Diagnostic methods in schistosomiasis.] 44 (11), 245-247. [In Hebrew: English & French summaries pp. 246-247.]
 c. PADERSKI, B., 1953.—[Hepato-splenomegaly in schistosomiasis.] 44 (11), 247-249. [In Hebrew: English & French summaries pp. 248-249.]
 d. KARIV, I., 1953.—[Cardiac problems in schistosomiasis.] 44 (11), 249-250. [In Hebrew: English & French summaries p. 250.]
 e. FRANKL, O., 1953.—[Early intestinal schistosomiasis.] 45 (4), 83-85. [In Hebrew: English & French summaries p. 85.]
 f. ROTH, J., 1953.—[The roentgenological appearance of pulmonary schistosomiasis.] 45 (4), 85-89. [In Hebrew: English & French summaries p. 89.]

(346a) As the immigration into Israel of Yemenites infected with *Schistosoma mansoni* and of others from Iraq, Egypt and North Africa carrying *S. haematobium* continues, the danger of schistosomiasis becoming endemic is stressed. Rectal biopsy and hatching tests have revealed many asymptomatic cases when employed in the routine examination of patients of Near East origin.

R.T.L.

(346b) Urinary schistosomiasis can be readily diagnosed by examining fibrin threads voided in the urine. For intestinal schistosomiasis the hatching test, although time consuming, gives a high percentage of positive results.

R.T.L.

(346e) Nineteen boys admitted to hospital with early intestinal schistosomiasis were thought to have acquired their infection by bathing in or working near the Yarkon river, in the neighbourhood of Tel-Aviv. As no autochthonous case of *Schistosoma mansoni* infection has hitherto been reported in Israel, it is thought that the country's waterways may have been infected by recent immigrants, possibly from the Yemen. Of the 19 boys, 17 gave typical X-ray pictures of pulmonary infection and five had hints of cor pulmonale which showed further development 15 months later.

R.T.L.

(346f) Owing to the recent recurrence of cases of schistosomiasis in Israel, a brief description is given of pulmonary schistosomiasis and its recognition by X-ray examination. There may be a rapid development of cor pulmonale as a complication due to the increased blood pressure in the pulmonary circulation.

R.T.L.

347—Hassadeh.

- *a. MINZ, G. & GORODEISKI, N., 1953.—[Sowing seed potatoes grown in nematode-infected soil.] 34 (3), 166-167. [In Hebrew.]

(347a) Microscopical examination of outwardly clean seed potatoes of “Up to Date” and “Arran Banner” varieties, taken from five localities infested with *Meloidogyne* sp., showed that such tubers may harbour internally large numbers of viable nematodes in all stages and should therefore be proscribed as seed material.

R.T.L.

348—Hemera Zoa. Buitenzorg.

- a. DJAENOEDIN, R. & TANDJUNG ADIWINATA, R., 1953.—“Stephanofilariosis. IX. *Stephanofilaria* sp. pada kulit kerbau.” 60 (7/8), 203–215. [English & German summaries pp. 212–214.]

(348a) In four buffaloes from Sumbawa, one of the Lesser Sunda Islands in Indonesia, small oval cysts underlying papules with crusty and scaly eczema on the neck and ears were found to contain adult *Stephanofilaria*. The worms closely resembled *S. stilesi* but owing to slight differences in the measurements of the spicules and in their geographical distribution and host they are not specifically identified. The chief measurements of this form and of the known species of *Stephanofilaria* are tabulated.

R.T.L.

349—Hospital. Revista Médica de Santander.

- a. MUÑOZ RIVAS, G., 1953.—“Fascioliasis experimental.” Año XIV, No. 23, pp. 49–53.

(349a) By experimental infection of guinea-pigs Muñoz Rivas confirms that the five human cases of liver-fluke infection earlier reported in Bogotá [see *An. Soc. Biol. Bogota*, 1952, 5 (4)] were due to *Fasciola hepatica* and that the intermediate host in the plain of Bogotá is *Limnaea bogotensis*. Only seven out of 5,531 *Limnaea* collected were naturally infected, compared with two out of 120 reported by Brumpt and his co-workers; only three out of 500 became infected in the laboratory. No *Fasciola* infection occurred either naturally or experimentally in *Planorbis* sp. or *Physa* sp. A xiphidiocercaria commonly present in *L. bogotensis* produced in rats small flukes provisionally identified as belonging to the Plagiorchiidae. P.M.B.

350—Igaku Kenkyuu. Kyushu University.

- a. SAGARA, I., 1953.—[Studies on *Gnathostoma*. Part I. A pathohistologic study of the site of adult gnathostome infestation in final hosts.] 23 (5), 800–821. [In Japanese: English summary pp. 820–821.]
- b. SAGARA, I., 1953.—[Studies on *Gnathostoma*. Part II. Migration route of larvae of *Gnathostoma spinigerum* in the rat's body and histopathological changes caused along the route.] 23 (5), 822–836. [In Japanese: English summary pp. 835–836.]
- c. ARITA, M., 1953.—[Studies on two species of *Gnathostoma* parasitic in the weasels.] 23 (9), 1729–1749. [In Japanese: English summary p. 1748.]

(350a) The tumours formed by *Gnathostoma nipponicum* in the oesophagus of the weasel, by *G. doloresi* in the stomach wall of the pig and wild boar and by *G. spinigerum* in the stomach wall of the cat and the dog are mainly composed of submucous, connective tissue due to proliferation of its cells around the parasite's burrow. In the weasel, ossification occurred in nine out of 26 cases with oesophageal tumours. In the pig and wild boar there was chronic inflammation of the gastric mucosa with marked infiltration of eosinophil cells into the tumour. In the cat and dog, the tumours showed no marked change except at the site of the burrow. Cell infiltration was marked in the dog but in the cat it was found in groups often with hyaline degeneration of the connective tissues. The wall of the parasite's burrow was composed of a necrotic layer in close contact with the parasite, a layer of granulation tissue with extensive cell infiltration and a thick layer of metamorphosed granulation tissue rich in connective tissue. Tumour formation begins when the fairly developed worm reaches the submucous layer. An unknown homogeneous substance of irregular shape or forming the surface wall of the burrow at the anterior end of the worm is present in the tumours in the weasel, pig, wild boar and dog.

R.T.L.

(350b) Thirty to sixty minutes after larvae of *Gnathostoma spinigerum* obtained from the fish *Ophicephalus argus* were fed to an albino rat, they were found in the gastric submucosa or in its muscle layer and remained there for two or three days before penetrating into the abdominal cavity and invading the liver where they remained for eight to twelve days. About eleven days after the initial infection, the larvae migrated from the liver to the muscles where many remained a long time before appearing under the skin but some had reached there within 20 days of the infection. Encapsulation was observed to take place after 26 days. The migration

of the larvae in the liver caused congestion with haemorrhage, atrophy and necrosis and cell infiltration along the burrows which 20 days after feeding were almost completely replaced by connective tissue. Where the worm had stayed for some time in one position in the muscle or beneath the skin, an initial, extensive, inflammatory reaction was followed by granulations which enclosed the worm and formed eventually a fibrous capsule. R.T.L.

(350c) In parts of Kyushu Island, 4.9% of 2,071 weasels were found to be infected with *Gnathostoma nipponicum*. The first intermediaries there were *Mesocyclops leuckarti* and *Eucyclops serrulatus*. An immature third-stage larva was obtained experimentally in *Rana nigromaculata nigromaculata* which is presumed to be the natural second intermediary. *Gnathostoma spinigerum* larvae encysted in the muscle and subcutaneous tissue of 14.9% of 69 weasels captured in Saga and Fukuoka Prefectures. These developed into adults when fed to cats and caused firm, oval tumours in the stomach wall. The larvae taken from the fresh-water fish *Ophicephalus argus*, when fed to weasels, encysted in the muscles. R.T.L.

351—Illinois Biological Monographs.

- a. VAN CLEAVE, H. J., 1953.—“Acanthocephala of North American mammals.” 23 (1/2), x+179 pp.

(351a) In this monograph on the Acanthocephala of North American mammals, Van Cleave outlines in successive chapters the methods of preparing specimens for study, their general morphology and taxonomy, the correlation of habitat with taxonomy, accidental infections and unusual host relationships, their vectors, their relations with fauna of adjacent continents, the classification of Metacanthocephala, keys to the classes and orders of the phylum Acanthocephala, the families and genera of Archiacanthocephala and the genera of Palaeacanthocephala occurring in mammals in North America. The family Pachysentidae is invalidated. There follow analyses of the genera *Corynosoma* and *Bolbosoma*, of the genera and species of the Oligacanthorhynchidae and of the genus *Moniliformis*, a chapter on unidentified Archiacanthocephala, a check-list under hosts of the species of Acanthocephala found in mammalian hosts in North America, an extensive list of references, an index of Latin names and 13 plates containing 130 figures. R.T.L.

352—Indian Journal of Pediatrics.

- a. MOJUMDAR, N. G. & BISWAS, B., 1953.—“Diethylcarbamazine in ascariasis. A preliminary report.” 20 (77), 25-27.

(352a) Diethylcarbamazine given at the rate of 6 mg. per kg. body-weight daily for eight days, expelled the roundworms from five out of six children with ascariasis, usually on or after the fifth day. There were no toxic reactions. The cost of each course amounted to nearly five rupees. R.T.L.

353—Indian Medical Gazette.

- a. KANT, L., 1953.—“*Fasciolopsis buski* in Saharsa District (North Bihar).” 88 (2), 68-69.
 b. LASRADO, A. F. & SWAMY, T. V., 1953.—“A case of hydatid cyst of the broad ligament.” 88 (6), 329-330.
 c. RAMAKRISHNAN, N. R. & RATHNASWAMY, G. K., 1953.—“Use of DDT for the control of *Cyclops* breeding and as an anti-dracontiasis measure.” 88 (7), 386-390.
 d. RAMDAS, A., 1953.—“Chronic encysted guinea-worm lesion.” 88 (7), 391.

(353a) *Fasciolopsis buski* is endemic and is a public health problem in a large area of the Saharsa District of North Bihar. Leptocercariae were found in three *Planorbis* and were taken to be those of *F. buski*. Of the 2,000 snails collected from different tanks and pools in the affected areas, 75% were *Vivipara*, 21% were *Limnaea* and 4% were *Planorbis*. In one instance, two encysted cercariae were found on nuts and tubers of a water plant. Adult *F. buski* were also observed in several wild boars killed by hunting parties and in domestic pigs. The water of pools and tanks is frequently contaminated with the faeces of boars, pigs and man.

The commonest symptoms noticed in the patients were abdominal pain, emaciation and dysentery with blood and pus in the stools. Ascites and extreme anaemia develop in the later stages of the infection. There is an eosinophilia of 15%-20%. Most of the cases are diagnosed clinically as hookworm and in the majority of cases the flukes are evacuated after repeated treatment with a tetrachlorethylene and oil of chenopodium mixture. R.T.L.

(353c) Excellent results in controlling Cyclops were obtained in small-scale laboratory trials in which 2 c.c. of an 0.5% suspension of D.D.T. were added to a jar containing Cyclops in 2,000 c.c. of water. There was a mortality of 90% in 24 hours and 100% after 48 hours. When the dosage was 5 c.c., representing 12.5 parts per million, the effect was very spectacular. The larval stages succumbed more quickly than the adults. These results indicate that the use of D.D.T. as a suspension may provide a new method for the control of dracontiasis. R.T.L.

354—Indian Medical Journal.

- a. PHILLIPS, J. W., 1953.—“Roundworms (*Ascaris lumbricoides*).” 47 (4), 154-155.
- b. BHATNAGAR, B. L., 1953.—“Guinea worm and its treatment.” 47 (9), 274-276.

355—Indian Veterinary Journal.

- a. RAO, S. R. & HIREGAUDAR, L. S., 1953.—“Schistosomiasis in elephants in Bombay State.” 30 (3), 241-242.

(355a) Although *Ornithobilharzia nairi* was recorded as a new parasite of elephants in 1945, no instance of schistosome disease has hitherto been observed. Recently six cases with loss of appetite, suppression of urine and constipation followed by diarrhoea and vomiting were reported from the North Kanara district of Bombay where the infection appears to be prevalent in the large number of elephants used for timber transport. The eggs found in the faeces had the shape of an elongated cone with one side flatter than the other. There was a short abrupt terminal spine. As the eggs measured $140\mu-160\mu \times 65\mu-80\mu$, whereas Mudalier & Ramanujachari give $80\mu \times 30\mu$ in their original description of *O. nairi*, it is possible that the adults, when found, may prove to be different species. Three injections of 150 c.c. of antimosan injected subcutaneously at weekly intervals caused some improvement but the faeces remained positive. As *Limnaea acuminata* and *Indoplanorbis exustus* were present in the district, one of these snails may prove to be the intermediate host. R.T.L.

356—Irish Naturalists' Journal.

- a. ARMSTRONG, E. A., 1953.—“Nidicoles and parasites of the wren.” 11 (3), 57-64.

(356a) Prudhoe is quoted for the following list of recorded helminth parasites of the European wren, *Troglodytes t. troglodytes*: *Choanotaenia exigua*, *Dilepis attenuata*, *Centro-rhynchus fasciatus*, *Echinorhynchus decipiens* and *Prosthorhynchus transversus*. Only *Choanotaenia exigua*, *P. transversus* and an undescribed plagiorchid are known in the wren in Britain. R.T.L.

357—Japanese Journal of Medical Science and Biology.

- a. YOKOGAWA, M., 1953.—“Studies on the biological aspects of the larval stages of *Paragonimus westermanii*, especially the invasion to the second intermediate hosts (III).” 6 (2), 107-117.
- b. KOMIYA, Y. & YOKOGAWA, M., 1953.—“The recovering of *Paragonimus* eggs from stools of paragonimiasis patients by AMS III centrifuging technic.” 6 (2), 207-211.
- c. SHIBUE, H., 1953.—“The first intermediate host of a frog trematode, *Pleurogenes japonicus* Yamaguti.” 6 (2), 213-220.

(357a) Yokogawa continues his studies on the biological aspects of *Paragonimus* larvae. The cercariae of *P. westermanii* are very sluggish and, unlike those of other trematodes, show no chemotaxis to their vectors. Although the gill vessels contain the largest number of metacercariae, these are present in all parts of the crab's body, both sides of which are equally infected. Degenerated cercariae can be observed in the intestinal musculature soon after invasion. As almost all crabs seem to like snail liver, Yokogawa believes that the cercariae

enter through the mouth, penetrate the gut wall and are distributed throughout the body by the blood stream. Details are given of the results of feeding *Potamon dehaani*, *Eriocheir japonicus* and *Cambarus clarkii* with livers of *Semisulcospira libertina* containing cercariae of *Paragonimus westermanii*. The transformation of the cercariae to metacercariae in the crustacean host varied greatly but took an unexpectedly long time. The metacercarial cysts, like those of *P. kellicotti*, are slightly ovoidal in shape. When the cysts were experimentally fed to dogs, eggs were recovered from the faeces 76 days later. Yokogawa is inclined to support the view that *P. kellicotti* is not a distinct species.

R.T.L.

(357b) By repeated simultaneous examinations (totalling 189) of the sputum and faeces of 35 patients suffering from paragonimiasis, *Paragonimus* eggs were found in the sputum in 72% and in the faeces in 65.1%. The use of the AMS III centrifuging technique for the faeces explains the high rate obtained. In some of the cases eggs were present in the faeces only. This is attributable to the habit, common in rural areas, of swallowing the sputum.

R.T.L.

(357c) In 1951 Okabe & Shibue showed that a fresh-water shrimp, *Neocaridina denticulata*, served as the second intermediate host of the frog trematode *Pleurogenes japonicus*. Shibue has since completed the life-cycle by finding that the first intermediate host is *Bulinus kiushuensis*, 21.1% of which were naturally infected with colourless, oval shaped sporocysts containing one or two mature and two to five immature cercariae. The xiphidiocercaria has a virgulate organ. 23.7% of the infected snails also contained cercariae of *Loxogenes liberum*. Although these also have a virgulate organ, they are smaller, have a small stylet and encyst in dragon-fly nymphs. The life-cycle of *P. japonicus* was also completed experimentally by feeding the metacercariae from *N. denticulata* to a laboratory-raised *Rana nigromaculata nigromaculata*. Adults were recovered from the small intestine six days later.

R.T.L.

358—Journal of the American Veterinary Medical Association.

- a. OLSEN, O. W., 1953.—“An evaluation of medicaments for removing fringed tapeworms from the livers of sheep.” [Abstract.] 123 (921), 533-534.

(358a) [A fuller account of this paper appears in *Amer. J. vet. Res.*, 1953, 14 (53), 616-620. For abstract see No. 297e above.]

359—Journal of Biological Chemistry.

- a. BUEDING, E., 1953.—“Formation of tiglic and n-valeric acids by bacteria-free *Ascaris lumbricoides*.” 202 (2), 505-512.

(359a) Bueding has shown that the fatty acids containing five carbon atoms excreted *in vitro* by bacteria-free *Ascaris lumbricoides* include n-valeric acid and cis- α -methylcrotonic acid (tiglic acid).

W.P.R.

360—Journal of Comparative Pathology and Therapeutics.

- a. ROLLINSON, D. H. L., 1953.—“A comparison of the effects of phenothiazine dosage with and without a mineral lick supplement on indigenous calves in Uganda.” 63 (3), 159-170.

(360a) In Uganda, worm egg counts of the faeces of calves and goats are frequently high and a number of deaths are directly attributable to parasitic gastro-enteritis. Rollinson reports that although the dosing of calves with phenothiazine at monthly intervals effected a marked reduction in egg count there was no significant increase in body-weight over that of the controls. An improved but not statistically significant increase was shown by those receiving only a mineral lick supplement. When both phenothiazine and mineral lick were given to the calves they showed a highly significant increase in body-weight. The inorganic phosphorous level, haemoglobin and cell volume of the blood were estimated at the end of the experiment and are tabulated. The fall in inorganic phosphorus strengthens the view that phenothiazine may alter the animal's mineral metabolism and may explain some of the contradictory results in haemoglobin estimations made after phenothiazine treatment.

R.T.L.

361—Journal of the Egyptian Medical Association.

- a. GINDY, M. S., 1953.—"Preliminary report on factors affecting the stability of copper sulphates solutions in Nile water." **36** (4), 309-312.
- b. HALAWANI, A. & DAWOOD, M. M., 1953.—"Evaluation of the treatment of bilharziasis with foudin, stibophen and anthiomaline with special reference to the apparent cure-rates and relapse-rates." **36** (5/6), 339-356.
- c. CHANDLER, A. C., 1953.—"An evaluation of the effects, after two years, of sanitary improvements in an Egyptian village." **36** (5/6), 357-367.

(361a) Gindy summarizes the factors which may affect the concentration of copper sulphate in natural waters. Nile water has a great effect on the precipitation of copper which is further accelerated by the presence of silt and of a mud bottom. A slight stabilizing effect is induced by the addition of 5 p.p.m. of tartaric acid to a 30 p.p.m. solution of copper sulphate. Citric acid is more efficient. R.T.L.

(361b) Groups of boys kept under rigid discipline in the reformatory school at Giza were treated for *Schistosoma haematobium* infection several months after admission. Each received $\frac{1}{12}$ c.c. of foudin intramuscularly per kg. body-weight daily for 10, 8, 7, 6, 5, 4 and 3 consecutive days; after treatment ended their urine was examined once weekly for four weeks, once monthly up to the sixth month and again one year after treatment. The 10, 8 and 7 daily injections resulted in apparent cure in 96% but with the 7 injections the relapse rate was higher than with 8 injections and least, but with more toxic effects, in the 10 injections group. The highest percentage of apparent cure was attained three weeks after the end of the treatment. In the groups receiving 8 or 7, or even 4 or 3 injections there was an apparent cure in over 90%. There was a great reduction in the egg counts of the whole urine sediment after a standard muscular exercise even if an apparent cure was not obtained. There was no great difference in efficacy between stibophen and foudin. Twelve single daily injections were superior to ten in producing apparent cures and lower relapse rates but were more toxic. As a few of the patients began to pass living eggs after complete absence of eggs for one year, it is suggested that the reproductive organs of the female worms may regenerate one year or more after degeneration. No synergistic action was observed between antimony and miracil. The 15 patients who received anthiomaline became negative one month after treatment and none had relapsed in three months. The drug is more toxic than foudin or repodral when given daily but is fairly safe if given every other day. R.T.L.

(361c) The Egyptian village of Sindbis was provided with bore-hole latrines with cement platforms, a refuse disposal service and an unpolluted, well-water supply. The village of Aghour El Kubra, 4 km. away, was left unimproved as a control. Two years later it was found that the amount of *Ascaris* and hookworm infection was markedly higher in the control village. R.T.L.

362—Journal of Helminthology.

- a. PETERS, B. G., 1953.—"Tom Goodey, 1885-1953." [Obituary.] **27** (3/4), 105-106.
- b. PETERS, B. G., 1953.—"Vertical migration of potato root eelworm." **27** (3/4), 107-112.
- c. PETERS, B. G., 1953.—"Changes in potato root eelworm population with time and depth." **27** (3/4), 113-118.
- d. FENWICK, D. W. & REID, E., 1953.—"Population studies on the potato root eelworm (*Heterodera rostochiensis* Woll.)." **27** (3/4), 119-128.
- e. LYNSDALE, J. A., 1953.—"On a remarkable new cestode, *Meggittina baeri* gen. et sp. nov. (Anoplocephalinae) from rodents in Southern Rhodesia." **27** (3/4), 129-142.
- f. THOMAS, R. J., 1953.—"On the nematode and trematode parasites of some small mammals from the Inner Hebrides." **27** (3/4), 143-168.
- g. SOLIMAN, K. N., 1953.—"A study of the conditions favouring the survival *in vitro* of the cattle lungworm, *Dictyocaulus viviparus*." **27** (3/4), 169-180.
- h. EDWARDS, E. E., 1953.—"The root-knot eelworm on weeds and cultivated plants in the Gold Coast." **27** (3/4), 181-184.

- i. VARMA, A. K., 1953.—“On *Fasciola indica* n.sp. with some observations on *F. hepatica* and *F. gigantica*.” 27 (3/4), 185-198.
- j. TAYLOR, E. L. & MICHEL, J. F., 1953.—“The parasitological and pathological significance of arrested development in nematodes.” 27 (3/4), 199-205.

(362b) Peters has grown potatoes in clean soil in boxes made up of horizontal sections 2 in. deep, with an inoculum of *Heterodera rostochiensis* cysts in either the top or bottom section. Sampling the soil by layers he finds that upward and downward migrations are comparable and slight, most cysts being found in the original or its adjacent layer. Top or bottom watering make little difference (providing the inoculum is not water-logged), and insolation under glass is harmful only to the top inoculum. In the layer furthest from the inoculum, 8 to 10 in. away, cysts either are absent or constitute a fraction of 1% of the total. B.G.P.

(362c) Using the boxes described in the previous abstract, but filled with soil infested with *Heterodera rostochiensis*, and stopping the growth of potato plants after 5, 9, 13 and 19 weeks, Peters found that most of the increase in eelworm population occurred during the final 6-week period, and that the cycle of changes in the eelworm population (mainly a temporary decrease of larvae per cyst, followed by a large increase) proceeds more slowly in the topmost layer than in other layers, leading to a lower final population there. B.G.P.

(362d) Fenwick & Reid describe a series of pot experiments on population fluctuations of the potato-root eelworm in the presence of growing potatoes. They conclude that the root diffusate which is produced results in 70%-80% larval emergence from cysts in the vicinity of the root in the first 4-5 weeks of growth. Considerable root invasion occurs prior to the breaking through of the plant. Multiplication in the presence of potatoes is very variable the multiplication rate being negatively correlated with the initial infestation. The influence which pot size has on multiplication rates necessitates caution in the interpretation of results of pot trials. D.W.F.

(362e) Lynsdale describes the morphology of a new cestode, *Meggittina baeri* n.g., n.sp., collected in Southern Rhodesia from two rodents, designated “house rat” and “native granary rat”. The worms are remarkable in that each strobila consists of not more than two segments and the breadth is about 10 times the length, the measurements being 1-2 mm. long and 8-21 mm. broad. The new genus has affinities with the genus *Catenotaenia*, in particular with *C. oranensis* Joyeux & Foley, 1930 from which however it is easily differentiated. The author discusses the systematic position of *Catenotaenia* and maintains that it should remain in the family Anoplocephalidae, subfamily Anoplocephalinae. The new genus is placed in this subfamily with *Catenotaenia*. J.J.C.B.

(362f) Thomas reports on nematode and trematode parasites found by him in *Clethrionomys glareolus*, *Sorex araneus* and *Apodemus sylvaticus* from three islands of the Inner Hebrides. A total of 173 animals was examined especially in regard to the alimentary canal, musculature and body wall. The following parasites were recorded: (i) *Lyperosomum vitta*, *Brachylaemus recurvum*, *Capillaria muris-sylvatici*, *Heligmosomum glareoli* (new host record) and *Syphacia stroma* from *A. sylvaticus*; (ii) *Capillaria muris-sylvaticus*, *Trichuris muris* (new host record), *Trichostrongylus retortaeformis* (new host record), *Longistriata wolgaense* (new host record and new record to Britain) and *Aspicularis tetraptera* from *Clethrionomys glareolus*; (iii) *Brachylaemus fulvus* (new record to Britain), *Parastrongyloides winchesi*, *Capillaria exigua*, *Longistriata depressa*, *L. codrus* n.sp., *L. trus* n.sp., *L. didas* n.sp., *Soboliphyme soricis* and *Porrocaecum (spirale?)* larva from *Sorex araneus*. The female of the species *Longistriata wolgaense* is described for the first time. *L. codrus* n.sp. is characterized by a long dorsal ray and slender asymmetrical externo-dorsal rays. *L. trus* n.sp. has stout externo-dorsal rays which arise at the midpoint of the dorsal trunk, and the spicules end in simple points. In *L. didas* n.sp. the dorsal ray has bifid branches which do not diverge widely as in *L. trus* and the right ventro-lateral and antero-lateral rays are asymmetrical. R.T.L.

(362g) Soliman found that sodium chloride solutions of 0.8% to 0.85% were the most suitable in which to keep *Dityocaulus viviparus* alive. The time of survival was increased by the addition of small quantities of calcium, magnesium and potassium chlorides. The worm survived for five days in a solution consisting of NaCl (0.8%), CaCl_2 (0.015%), MgCl_2 (1.01%) and KCl (0.015%). The optimum pH of this medium was found to be 8.0. J.J.C.B.

(362h) In the neighbourhood of Accra, on land newly cleared and planted with tomatoes and other vegetables, *Meloidogyne* sp. caused severe damage in the first season. *Brassica rapa* grown for green manure, was also infested. A search showed that many common native weeds were infested. New host records for root-knot nematodes are *Brassica pekinensis*, *Phaseolus multiflorus*, *Cleome ciliata*, *Acalypha ciliaris* and *Trianthema portulacastrum*. M.T.F.

(362i) Varma describes *Fasciola indica* n.sp. from goats, cattle and buffaloes in Bihar and differentiates it from *F. hepatica* and *F. gigantica* on the basis of general shape, ratio of length to breadth, shape of cuticular scales, dimensions of acetabulum and oral sucker, pattern of intestinal branching, extent of testes and dimensions of eggs. In some of these characters *F. indica* is intermediate between *F. hepatica* and *F. gigantica*. Specimens of *Fasciola* from Assam (cattle and buffaloes), Rangoon (cattle) and Singapore (pig) are identified as *F. indica*. The pattern of the intestinal branches and the shape of the cuticular scales are believed to provide further evidence that *F. hepatica* and *F. gigantica* are separate species. J.J.C.B.

(362j) Taylor & Michel quote examples from various sources of arrested development in nematodes and add to the list some unpublished work concerning *Trichostrongylus retortaeformis*, *Trichonema* spp. and *Dityocaulus filaria* which supports their contention that this phenomenon is of common occurrence in the nematode group. As an explanation, this arrested development in the definitive host is likened to the waiting period of infective nematode larvae either in the soil or in an intermediate host which enables them to tide over the period in which the environment is unsuitable for their further development. The corresponding phase in the definitive host "serves the parasite in enabling it to wait until some depression of the host's state of resistance allows it to grow to maturity". The pathological effects of arrested development are described and discussed. J.J.C.B.

363—Journal of Investigative Dermatology.

- a. RITCHIE, L. S. & KING, W. C., 1953.—"Observations on the reactions of the larvae of *Ancylostoma caninum* and *Ancylostoma braziliense* to various drugs and chemical compounds based on *in vitro* tests." 20 (5), 337-341.

(363a) A number of the drugs and chemical compounds which have been recommended for the treatment of creeping eruption were tested *in vitro* on cultures of infective larvae of *Ancylostoma caninum* and *A. braziliense*. A table gives a partial list of the agents tested, the concentrations used and their larvicidal activity. Individual cultures of larvae from the same source showed differences in survival rates. Of the compounds tested, only hexylresorcinol or closely related compounds seemed to warrant further study for possible therapeutic use. R.T.L.

364—Journal of Mammalogy.

- a. McNEIL, C. W. & KROGSDALE, J. T., 1953.—"Parasites of raccoons in southwest Washington." 34 (1), 123-124.
- b. TINER, J. D., 1953.—"Fatalities in rodents caused by larval *Ascaris* in the central nervous system." 34 (2), 153-167.

(364a) In 29 raccoons, *Procyon lotor psora*, collected in Pacific County, Washington, *Arthrocephalus lotoris* was the most prevalent parasite. As many as 2,091 specimens were obtained from a single animal. Other helminths present were *Porrocaecum decipiens* [decipiens?], *Ascaris columnaris*, *Echinorhynchus gadi* and *Brachylaemus pellucidum*. R.T.L.

(364b) By feeding to rodents embryonated eggs of four species of *Ascaris* which occur in wild North American mammals, Tiner has obtained evidence that disturbances of the central nervous system, and in some instances a high mortality, may result from the presence of migrating *Ascaris* larvae in the brain. In mice, about one in 20 of the larvae ingested reached the brain where a single larva usually proved fatal. The raccoon *Ascaris* larva was effective against all rodent species studied but larvae of the skunk *Ascaris* were not necessarily fatal to mice, even when several were present in the brain. Wild ground squirrels and wild *Mus musculus* have been seen showing nervous symptoms similar to those resulting from experimental infection. As many of the infective larvae become encapsulated in other organs, the brain damage caused by a few migrating larvae would render them more liable to capture by carnivores. The full extent or significance of these lethal ascarid infections of carnivores on forest and grassland rodent populations has yet to be determined. R.T.L.

365—Journal of Parasitology.

- a. BECKER, E. R., 1953.—"How parasites tolerate their hosts." [Presidential address.] 39 (5), 467-480.
- b. ALEXANDER, C. G., 1953.—"Five new species of *Acanthobothrium* (Cestoda): Tetraphyllidae from southern California rays." 39 (5), 481-486.
- c. NEILAND, K. A., 1953.—"Helminths of northwestern mammals. Part V. Observations on cestodes of shrews with the descriptions of new species of *Liga* Weinland, 1857, and *Hymenolepis* Weinland, 1858." 39 (5), 487-494.
- d. BERBERIAN, D. A., PAQUIN, Jr., H. O. & FANTAUZZI, A., 1953.—"Longevity of *Schistosoma hematobium* and *Schistosoma mansoni*: observations based on a case." 39 (5), 517-519.

(365b) Five new species of *Acanthobothrium* were found in Californian rays. Three occurred in *Holorhinus californicus*, viz., *A. microcephalum* n.sp. which closely resembles *A. uncinatum* but differs in that the inner and outer prongs of the hooks are of equal length, the number of testes in a proglottis is 90-100 and the mature proglottis is only slightly longer than broad; *A. holorhini* n.sp. which differs from *A. coronatum* in the number of testes and in the strobila being less robust and with less muscle; *A. unilateralis* n.sp. which is peculiar in that the gonopore openings are unilateral. In *Rhinobatos productus* there were two new species, viz., *A. rhinobati* n.sp., differing chiefly from *A. benedenii* in its larger over-all size and in its testes numbering 51-62, and *A. robustum* n.sp. which is characterized by the presence of two large accessory suckers on each bothrium and by the shape of the hooks which are small and stout with irregular edges and have the inner prong much larger than the outer from which an accessory spur projects at the base. R.T.L.

(365c) Cestodes have apparently not been reported hitherto from *Sorex bendirii palmeri* or *S. obscurus permiliensis*. From the former, *Hymenolepis intricatus*, *H. kenki*, *H. macyi*, *H. longi* and *H. sengeri* n.sp. and from the latter, *H. kenki* are now recorded. *H. pauciproglottis* n.sp. is described from *S. v. vagrans*. *H. sengeri* has 10 hooks but differs from other closely related soricid species by their size and shape, by the size and extent of the cirrus pouch, the distribution of the testes and the size of the eggs. *H. pauciproglottis* has 12 hooks; its over-all size is 1.15-1.80 mm. and is composed of up to eight proglottides of which one or two may be gravid. Other differences lie in the size and shape of the hooks, size and shape of the cirrus pouch and the testes arrangement. A key to the 14 *Hymenolepis* species of North American shrews is provided. There is also a key to the species of *Liga*, the five known species of which are all parasites of birds. In *L. soricis* n.sp., now described from *S. bendirii palmeri*, the hooks number 14 to 16, the testes number 13 to 20, the cirrus is spinose and the eggs measure 0.02-0.03 mm. in diameter. Additional information is given on the anatomy of *H. longi* and *H. intricatus*. R.T.L.

(365d) Microscopical examination of the appendix of a native of the Yemen, Arabia, who immigrated to the U.S.A. 27 years previously and had not travelled abroad since then, showed eggs of *Schistosoma mansoni* and *S. haematobium*. Degenerated eggs were also present in the urine and faeces. R.T.L.

365—Journal of Parasitology (cont.)

- c. MYERS, B. J. & WOLFGANG, R. W., 1953.—"*Lecithochirium lycodontis* n.sp., trematode from the Moray eel of the New Hebrides." 39 (5), 520–522.
- f. SHELTON, G. C. & BAILEY, W. S., 1953.—"Experimental infection of the chinchilla with *Hymenolepis nana* var. *fraterna*." 39 (5), 533–534.
- g. PRATT, I. & ALDRICH, Jr., L. E., 1953.—"*Megalocotyle trituba* n.sp. (Trematoda: Monogenea)." 39 (5), 535–537.
- h. BABERO, B. B., 1953.—"Studies on the helminth fauna of Alaska. XVI. A survey of the helminth parasites of ptarmigan (*Lagopus* spp.)." 39 (5), 538–546.
- i. NEILAND, K. A., 1953.—"*Leucochloridium perisorisae*, a new species of trematode (Leucochloridiinae) from the Oregon jay, with a discussion of the application of host-parasite relationships to the taxonomy of this group." 39 (5), 553–557.
- j. VOGEL, M. & READ, C. P., 1953.—"*Diplophallus andinus* n.sp. and *Monoecocestus rheiphilus* n.sp., avian cestodes from the High Andes." 39 (5), 558–567.

(365e) *Lecithochirium lycodontis* n.sp. from a Moray eel, *Lycodontis* sp., in the Southern Pacific, differs from other species and has a rugose ventral cuticle with wart-like papillae on its folds, a broad, muscular, genital sinus, a bipartite seminal vesicle in which the anterior portion is thick-walled and the posterior portion is thin-walled and sac-like, and a very large acetabulum. R.T.L.

(365f) Sixteen days after receiving about 1,900 eggs of *Hymenolepis nana* var. *fraterna*, adults representing 2.68% and 2.32% of the total eggs administered were recovered from two chinchillas. One animal was given a mixture of food and mouse faeces for 11 days. Although an extremely heavy infection developed, no symptoms of intestinal disturbance resulted. The prepatent period in the chinchilla ranges from 15 to 22 days and the patent period from 16 to 51 days. An apparent instance of internal auto-infection was noted. R.T.L.

(365g) *Megalocotyle trituba* n.sp. from *Sebastodes* taken off shore at Newport, Oregon, differs from *M. marginata* in that it is at least twice as broad, the haptor is much larger, the outlines of the posterior septae and the form of the posterior pair of hooks are different, and the three genital ducts all run separately until the genital atrium is reached. R.T.L.

(365h) Of 292 Alaskan ptarmigan, *Lagopus* spp., examined, 37% were found to be infected with helminths, viz., five species of nematodes, two species of trematodes and four species of cestodes. *Trichostrongylus tenuis* from the North American ptarmigan, *Leucochloridium variae*, *Brachylaima fuscata*, *Aploparaksis galli* and *Davainea proglottina* from the willow ptarmigan and *Rhabdometra nulloi* from the rock ptarmigan are recorded for the first time. R.T.L.

(365i) In *Leucochloridium perisorisae* n.sp. from *Perisoreus o. obscurus*, the intestinal crura extend well past the posterior limits of the vitellaria, the acetabulum is larger than the oral sucker and the integument is spinous in the region of the oral sucker. In a discussion of the taxonomy of the Leucochloridiinae, Neiland considers that Kagan's conclusions, based on material cultured in unnatural hosts, cannot safely be utilized in establishing the normal morphological characteristics of a species. R.T.L.

(365j) *Diplophallus andinus* n.sp. from *Recurvirostra andina* in Peru differs from *D. polymorphus* in that the cirrus spines are restricted to several longitudinal rows inside the cirrus and to the spinous cirrus cap. The eggs measure $46\mu \times 35\mu$. The filaments connecting the innermost and middle membranes in the egg project laterally but terminate at opposite poles on the middle membrane. The testes average 62μ in diameter. Vogel & Read are of the opinion that *Acoelus* and *Diplophallus* should be retained in the same family as the major difference between them is the duplication of the male reproductive organs in each segment in *Diplophallus*. *Monoecocestus rheiphilus* n.sp. from *Pterocnemia pennata* is larger than *M. anoplocephaloides* and differs in the relative size of its organs. A *Monoecocestus* sp. is recorded from *Tinamotis pentlandi*. R.T.L.

365—Journal of Parasitology (cont.)

- k. HOFFMAN, G. L., 1953.—“*Scaphanocephalus expansus* (Crepl.), a trematode of the osprey, in North America.” 39 (5), 568.
- l. WU, L. Y. & KINGSCOTE, A. A., 1953.—“A note on *Lymnaea stagnalis* (L.) as a snail host for *Fascioloides magna* (Bassi, 1875) (Trematoda).” 39 (5), 568.
- m. ETGES, F. J., 1953.—“Observations on excystation of metacercariae of *Plagitura salamandra* Holl, 1928, with some notes on its morphology.” 39 (5), 568–569.
- n. MACY, R. W. & BIGGS, J. A., 1953.—“Epizootic in eastern Oregon muskrats associated with massive infection of *Hymenolepis ondatrae* Rider and Macy.” 39 (5), 570.
- o. WARD, J. W. & FRANKLIN, M. A., 1953.—“Further studies on the occurrence of the dog heart worm, *Dirofilaria immitis* in dogs in Mississippi.” 39 (5), 570–571.
- p. MACY, R. W., 1953.—“First report of the human intestinal fluke *Heterophyes heterophyes* from a Yemen bat, *Rhinolophus clivosus acrotis*.” 39 (5), 571.
- q. KARTMAN, L., 1953.—“An observation on the loss of microfilariae from the mosquito host during its infective meal.” 39 (5), 571–572.
- r. KARTMAN, L., 1953.—“Effect of feeding mosquitoes upon dogs with differential microfilariemias.” 39 (5), 572.

(365k) *Scaphanocephalus expansus* is recorded from North America for the first time. It was collected from an osprey, *Pandion haliaetus carolinensis*, from Iowa. Several specimens of *Neodiplostomum* sp. were found in the same bird. L.M.C.

(365l) Young laboratory-bred *Limnaea stagnalis* were successfully infected with the miracidia of *Fascioloides magna*. A sporocyst containing an active mother redia and two young mother rediae were found on the wall of the respiratory chamber 35 days after infection. L.M.C.

(365m) Metacercariae of *Plagitura salamandra* were found excysting in the intestine of *Triturus viridescens* and were also present in a *Gyraulus* sp. found among the intestinal contents. Excystation was observed in amphibian Ringer's solution. The differences between the metacercariae and those of *P. parva*, both in morphology and method of excystation, are briefly described. L.M.C.

(365n) An epizootic in musk-rats, *Ondatra zibethica*, at Malheur Lake National Wildlife Refuge, Burns, Oregon, in the winter of 1947 is thought to have been caused by a heavy infestation of *Hymenolepis ondatrae*. This eastern Oregon *H. ondatrae* differed slightly from the original western Oregon type specimens but not sufficiently to justify the creation of a new name at present. L.M.C.

(365o) Of the 153 dogs, mainly adult, which were examined, 50 were found to be infected with *Dirofilaria immitis*. It is stated that in Mississippi the most abundant intermediate hosts of *D. immitis* are *Culex quinquefasciatus* and *Aedes triseriatus*. L.M.C.

(365p) Small but mature *Heterophyes heterophyes* were found in *Rhinolophus clivosus acrotis*. Although this species has been found in carnivores and man this is the first record of its occurrence in bats. R.T.L.

(365q) In the first droplets of blood-tinged plasma expelled from the anus by *Anopheles quadrimaculatus* during feeding to satiation on dogs infected with *Dirofilaria immitis*, the number of microfilariae passed varied from 0% to 17% of the total parasites found in the mosquito. This loss in the anal exudate probably does not impair the host's efficiency as a vector. No dejecta were observed when *Aedes aegypti*, *A. albopictus*, *Culex quinquefasciatus* and *C. pipiens* were similarly fed. L.M.C.

(365r) Four lots of 10 female *Anopheles quadrimaculatus* were fed on a dog with 16,000–18,000 microfilariae of *Dirofilaria immitis* per c.c. and dissected 15 days later. The third stage of development of the larvae was reached by 86.5%, 76.2%, 49.9% and 92.2% respectively of the total present in each of the four lots with an average of 17.3 larvae per mosquito. In three lots of 10 female *A. quadrimaculatus* fed on another dog with 30,000–40,000 microfilariae per c.c., percentages were 1.8, 0.2 and 0.8 respectively, and the mosquitoes averaged

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- s. KARTMAN, L., 1953.—“Ingestion by mosquitoes of saline and sugar suspensions of *Dirofilaria immitis* microfilariae.” 39 (5), 573.
- t. SMYTH, J. D., 1953.—“Fertilization of the cestode *Schistocephalus solidus* in vitro.” 39 (5), 573–574.
- u. FRANKLIN, M. A. & WARD, J. W., 1953.—“*Echinococcus* infection in Mississippi. A new record of a natural infection in dogs.” 39 (5), 574.
- v. THORSON, R. E., 1953.—“Formation in the rabbit of antibodies against *Nippostrongylus muris*.” 39 (5), 574.
- w. CHERNIN, E., 1953.—“The length of the prepatent period in a filarial infection of ducks.” 39 (5), 574–575.

99.3 larvae each at 15 days. Of 105 females fed on the first dog, 47.6% survived for 15 days while of 900 females fed on the second dog, 5% survived the same period. These differences were apparently due to the disparity in numbers of microfilariae ingested by the mosquitoes.

L.M.C.

(365s) Physiological saline containing microfilariae of *Dirofilaria immitis* freed of blood elements was offered to fasted female *Culex pipiens* and *Aedes aegypti* in a Greenberg artificial feeding apparatus. No *C. pipiens* and only four out of 75 *A. aegypti* fed. These four were dissected respectively one hour, one day, two days and nine days after feeding. The midgut of the first was distended with saline, the stomach contained active microfilariae and the dorsal and ventral diverticula were filled with gas bubbles only. The second was negative for microfilariae. The third contained four sausage-stage larvae in the Malpighian tubules. The fourth contained two microfilaria-like larvae and three developing larvae, in the pre-infective stage, in the Malpighian tubules. In an experiment with *Anopheles quadrimaculatus* a 4.95% solution of dextrose in distilled water containing microfilariae of *D. immitis* was taken by both sexes. The microfilariae in the solution appeared normal on examination after 30 minutes. Three female mosquitoes dissected one hour after feeding showed empty midguts but distended diverticula containing active microfilariae. Seventeen days later 15 females and two males dissected were all negative. Twelve female *A. quadrimaculatus* controls, fed on infected dog whole blood which had been centrifuged as for isolation of microfilariae, showed normal development of the worms to the infective stage. These results suggest that microfilariae entering the diverticula had failed to find their way to the midgut and thus to the Malpighian tubules.

L.M.C.

(365t) Fertile eggs hatching apparently normal coracidia are produced by *Schistocephalus solidus* when plerocercoids are cultured to maturity *in vitro* by a new technique. The plerocercoids were grown in a length of quarter-inch seamless cellulose tubing suspended in a tube of horse serum which was placed in a shaker in a water bath at 40°C. for two days. The tubing provided the necessary compression of the larvae during maturation, and being semi-permeable, permitted the escape by diffusion of metabolic waste products.

L.M.C.

(365u) Adult *Echinococcus granulosus* in the dog is reported for the first time in Mississippi. It occurred in two dogs from an area to which sheep and dogs from other states are brought and in which transient labour from south Texas and Mexico is employed.

L.M.C.

(365v) Infective larvae of *Nippostrongylus muris* were placed in serum from normal rats, immune rats, normal rabbits and rabbits previously infected with larvae of *N. muris*. Oral and excretory precipitates appeared on the larvae in immune rat serum and immune rabbit serum in one hour. No precipitates appeared in normal rat or normal rabbit serum. However in two days the larvae in both rabbit sera were almost all dead, while those in both rat sera survived during the week of observation.

L.M.C.

(365w) Data are given which tend to show that the prepatent period of a microfilaria (not yet specifically identified) in the blood of ducklings ranged from 6 to 9 months. Necropsies on six of the ducks failed to reveal any adult filariae.

L.M.C.

365—Journal of Parasitology (cont.)

- x. THORSON, R. E., 1953.—“Infection of rabbits with a rat nematode, *Nippostrongylus muris*.” 39 (5), 575.
- y. GUSTAFSON, P. V., 1953.—“The effect of freezing on encysted *Anisakis* larvae.” 39 (6), 585–588.
- z. TURNER, J. H., 1953.—“Viability studies on eggs and infective larvae of *Nematodirus spathiger* (Railliet, 1896), a trichostrongylid nematode of ruminants.” 39 (6), 589–598.
- ba. VOGEL, M., 1953.—“*Hymenolepis parvissima* n.sp., a minute cestode from the shrew *Sorex bendirei bendirei* (Merriam) in California.” 39 (6), 599–602.
- bb. CONNOR, R. S., 1953.—“A study of the seasonal cycle of a proteocephalan cestode, *Proteocephalus stizostethi* Hunter and Bangham, found in the yellow pikeperch, *Stizostedion vitreum vitreum* (Mitchill).” 39 (6), 621–624.
- bc. LEIGH, W. H., 1953.—“*Cercaria huttoni*, sp. nov., a dermatitis-producing schistosome larva from the marine snail, *Haminoea antillarum guadalupensis* Sowerby.” 39 (6), 625–629.

(365x) Rabbits were infected with *Nippostrongylus muris* by subcutaneous injection of larvae. Viable eggs were found in the faeces between the sixth and tenth days after infection, and adult male worms in the intestine of one rabbit on the eighth day. The percentage development of the larvae was low and the duration of infection short. L.M.C.

(365y) When exposed to freezing for 24 hours immature *Anisakis* larvae encysted in commercial fish mostly died, and at -17°C . all died; at -30°C . all were killed in 5 minutes. Commercial freezing of herring in 100 lb. blocks using an initial temperature of about -30°C . for 16 hours and storage at -12°C . killed the *Contracaecum* larvae and nearly all the *Anisakis* larvae in the first 24 hours. Absence of spontaneous or induced movement was taken to indicate that death had occurred. R.T.L.

(365z) As the pathogenicity of *Nematodirus* spp. is now reasonably well established experiments were made on pastures and in the laboratory to determine the degree of resistance of the infective larvae and the viability of the ova after drying. *Nematodirus spathiger* larvae survived continuous and interrupted freezing tests, and on pastures should survive the normal winter weather in Maryland. Desiccation imposed the greatest hardship on the larvae. 82% survived drying at room temperature for two months but none survived after five months. 70% of partially embryonated ova, when dried at room temperature, survived three months but none after four months. The survival of ova dried at 40°F . was 85% at three months, 20% at four months, 10% at five months and none at about six months. Some survived after a two-year exposure in faecal material kept at 40°F . Freezing at 28°F . to 30°F . affected the larvae but little. 98.7% survived exposure for three months and 25% for ten months. Alternate freezing and thawing gave a survival rate of 72% after seven months and 37% after exposure for ten months. In water maintained at 35°F ., 48% of the larvae survived for eleven months. R.T.L.

(365ba) *Hymenolepis parvissima* n.sp. from *Sorex bendirii bendirii* in California when fully mature has an average strobila length of only 0.644 mm. There are seven to ten proglottides; most frequently they number eight. The rostellum carries ten hooks. The testes are arranged in a straight line. It resembles *H. spenophorus* but it lacks a cirrus with a terminal knob. R.T.L.

(365bb) The seasonal cycle of *Proteocephalus stizostethi* in *Stizostedion vitreum vitreum* in Lake Erie resembles that recorded for other piscine tapeworms. The adults are found only in the late spring and early summer and disappear from the host between early August and mid-September. Infection is acquired in the autumn and small, immature specimens increase in size during the winter; embryonated eggs are produced the following June. R.T.L.

(365bc) A dermatitis which occurred among sea bathers along the lower east coast of Florida was attributed by Hutton (1952) to infection with *Cercaria* H from *Nassarius vibex* and *Cercaria* ♀ from *Haminoea antillarum guadalupensis* but neither has yet been described.

365—Journal of Parasitology (cont.)

- bd. ETGES, F. J., 1953.—“Studies on the life histories of *Maritrema obstipum* (Van Cleave and Mueller, 1932) and *Levinseniella ammicolae* n.sp. (Trematoda : Microphallidae).” 39 (6), 643–662.
- be. VILLELLA, J. B., 1953.—“*Retinella indentata* (Say), a first intermediate host of *Entosiphon thompsoni* Sinitsin (1931) (Trematoda : Brachylaemidae).” 39 (6), 667.
- bf. WANTLAND, W. W., 1953.—“*Cysticercus fasciolaris* in the Syrian hamster.” 39 (6), 667–668.
- bg. SILLMAN, E. I., 1953.—“A Korean case of infestation with *Thelazia callipaeda* with notes on human thelaziasis.” 39 (6), 669–670.

Cercaria ♀ is now described, figured and named *Cercaria huttoni* n.sp. It is readily distinguished from all other schistosome cercariae in that it is the only species with eye spots which has five pairs of flame cells and three pairs of penetration glands. The cercariae emerge in the early hours of the evening and lie inactive in contact with the surface film. Under experimental conditions they penetrate the skin in about 12 minutes and produce an intense stinging sensation in 15–25 minutes. Small macules about 1 mm. in diameter appear in about 45 minutes and increase to 2–5 mm. in diameter in 4 hours. These are replaced by papules with surrounding erythema on the second and third day. By the seventh day only minute dark red spots remain. R.T.L.

(365bd) The life-histories of two minute xiphidiocercariae found in *Ammicola pilsbryi* near Cold Spring on Hudson, New York, have been traced. Both penetrate and encyst in *Asellus communis* and reach sexual maturity in various birds and mammals. Experimental infections produced in white mice and ducklings prove that one is the larva of *Maritrema obstipum* and the other is the larva of *Levinseniella ammicolae* n.sp. Natural infections of both species were present in domestic ducks from the ponds in which the infected *Ammicola pilsbryi* were located. Etges supports Cable & Kuns (1951) in suppressing the family Maritrematidae. *Pseudospelotrema* is a synonym of *Maritrema* and the species *P. japonicum*, *P. uriae* and *P. cincli* are transferred to, and *P. obstipum* and *P. medium* returned to *Maritrema*. *Maritreminoides* is restored to contain *P. nettae* and *P. ammospizae*. *Gynaecotyla* is suppressed as a synonym of *Microphalloides* to which *Gynaecotyla jägerskiöldi*, *G. simillimus*, *G. adunca*, *G. squatoralae* and *G. nassicola* are therefore transferred. *Levinseniella ammicolae* n.sp. is distinguished from *L. pellucida* by its relatively small digestive tract, larger ovary, smaller male copulatory organ, smaller eggs and its occurrence in a different crustacean host. It differs also from *L. propinqua* by its longer intestinal crura, much larger pharynx, smaller acetabulum, smaller male copulatory organ, and lack of hooks and ribs on the projections of the genital atrium. R.T.L.

(365be) The brachylaemid *Entosiphon thompsoni* was present in the intestine of 44 out of 85 short-tailed shrews, *Blarina brevicauda*, and in two out of 49 *Peromyscus leucopus noveboracensis*. Eggs from adult flukes when fed to *Retinella indentata* developed into branching sporocysts. Cercariae were shed 60–70 days after infection. Metacercariae were obtained when the cercariae were transferred to suitable laboratory-bred snails. Mature adults were recovered 21 days after the metacercariae were fed to a laboratory *Peromyscus*. R.T.L.

(365bf) When viable eggs from gravid proglottides of *Taenia taeniaeformis* obtained from laboratory cats were fed to 60 white rats and 30 Syrian hamsters all the rats but none of the hamsters developed cysticerci. Some eggs were then subjected to *in vitro* pre-digestion at body temperature in artificial gastric juice, without visible effect on the embryophores. Others were treated with ox bile and pancreatin. This medium disintegrated the embryophores and released active onchospheres, but when these were administered to hamsters no infection followed. Although these experimental attempts failed a single *Cysticercus fasciolaris* strobilocercus, 1.4 cm. long, was found in the liver of one of a series of hamsters which had been experimentally infected with *Trichinella spiralis*. R.T.L.

(365bg) A second instance of human infection in Korea with *Thelazia callipaeda* is now recorded. An adult male worm was removed in Seoul from the left eye of an 11-months-old Korean boy by Dr. Kim Hi Choon and identified by Dr. Ra San Yung. R.T.L.

365—Journal of Parasitology (cont.)

- bh. KARTMAN, L., 1953.—“A correlation of Malpighian tubule size with development of *Dirofilaria immitis* in the mosquito.” 39 (6), 671–672.
- bi. SCHAD, G. A., 1953.—“*Leptophyllum ovalis* Byrd and Roudabush, a synonym of *Leptophyllum tamiamiensis* McIntosh.” 39 (6), 673.
- bj. ALICATA, J. E., 1953.—“The snails, *Pseudosuccinea columella* (Say), new intermediate hosts for the liver fluke *Fasciola gigantica* Cobbold.” 39 (6), 673–674.
- bk. HARBO, J., 1953.—“Simultaneous *Trichuris* and *Ascaris* infection.” 39 (6), 674.
- bl. BABERO, B. B., 1953.—“Some helminth parasites of Alaskan beavers.” 39 (6), 674–675.
- bm. PRICE, D. L., 1953.—“A board designed for exposing large animals to schistosomes in the laboratory.” 39 (6), 675–676.
- bn. PENNER, L. R., 1953.—“Another *Ascaridia galli* in hen's egg.” 39 (6), 676.
- bo. PENNER, L. R., DERY, D. W. & KNUCKLES, J. L., 1953.—“*Dirofilaria scapiceps* from *Sylvilagus floridanus* in New England.” 39 (6), 676–677.

(365bh) Measurements of the diameter of the Malpighian tubules of female *Aedes aegypti*, *A. albopictus*, *Culex quinquefasciatus* and *Anopheles quadrimaculatus* naturally infected with *Dirofilaria immitis*, suggest that those mosquitoes with predominantly wide tubules show a preponderance of normally developing larvae; other factors must also operate. R.T.L.

(365bi) From a comparison of specimens of *Leptophyllum tamiamiensis* collected from *Elaphe quadrivittata deckerti* with the descriptions of *L. tamiamiensis* and *L. ovalis*, it appears that the characters upon which these two species were originally differentiated, viz., size, shape of ovary, length of metraterm, host and habitat are not constant. *L. tamiamiensis* was obtained from the rectum of *Agkistrodon piscivorus*, and *L. ovalis* from the small intestine of *Natrix taxospilotes* but Schad's specimens came from the rectum of a third host, indicating that a strict host specificity is lacking. The name *L. tamiamiensis* McIntosh, 1939 has five months' priority over *L. ovalis* Byrd & Roudabush, 1939. R.T.L.

(365bj) *Pseudosuccinea columella* collected from a water-cress area in Honolulu were exposed to miracidia of *Fasciola gigantica*. Fifteen days later those dissected contained many rediae with daughter rediae. Forty-two days after infection a large number of cercariae emerged and encysted on vegetation and on the sides of the containers. Encysted cercariae were fed to two young guinea-pigs and 15 days later small fasciolid flukes, 1.5 mm. to 2 mm. long, were recovered from their livers. The only vector hitherto known in the Hawaiian Islands is *Fossaria ollula* which, it is remarked, has recently been listed by Hubendick as *Limnaea volutata*. R.T.L.

(365bk) Harbo offers an explanation of the “highly significant discrepancy” between the number of cases of simultaneous infection with *Trichuris* and *Ascaris* actually observed and the number expected on a probability computation by Koch & Steinitz (1951) [for abstract see Helm. Abs., 20, No. 109g] in which the number of double infections was twice as high as anticipated. He points out that the coincidence of the two infections is generally influenced by their biological similarities as regards dispersal, hatching in the soil and mode of invasion. The conformity of sources and ways of infection may be expected to result in simultaneous infections with a higher rate of coincidence than can be calculated stochastically. R.T.L.

(365bl) During an examination of 56 beavers collected in Alaska from Kalgin Island (16), Anchorage (4), Lake Louise (24), Fairbanks (6), and Arctic Village (6) the following helminths were found: *Stichorchis subtriquetrus* in eight, *Castorstrongylus castori* in 20 and *Travassosius americanus* in 34. No pathological conditions attributable to these infections were observed, nor were any of the three species limited geographically. R.T.L.

(365bo) From the summary given of the literature of filarial infections in cotton-tail rabbits in North America it appears that the cases of *Dirofilaria scapiceps* now reported from Connecticut and Massachusetts are the first to be recorded for these states. R.T.L.

366—Journal of the South African Veterinary Medical Association.

- a. ROSSITER, L. W., 1953.—“A field campaign against worms in the Ermelo area.” 24 (3), 149–153.

(366a) In the Ermelo area of the Transvaal the condition of the cattle is very poor even when the feeding is good. No attempts are made by the farmers to treat their cattle, although the sheep are dosed regularly for internal parasites. The helminth infections were mainly *Haemonchus contortus*, *Cooperia* spp., paramphistomes and liver-fluke, and tapeworms in calves. Rossiter estimates that the loss in the high summer rainfall areas like Zululand, Natal, Eastern Transvaal, and the Transkei may reach tens of millions of pounds annually. A small field campaign with Tetram, consisting of 99% tetrachlorethylene, at a cost of 1½ penny per bovine and ¾ penny per sheep gave spectacular results. In the first year, 56,000 head of cattle and 86,000 sheep were treated by the Inspectorate staff. There was no mortality in cattle but 25 sheep died within a few seconds or within one or two hours after dosing. In the following year, all sheep were kraaled early in the afternoon before dosing. After this short period of starvation there was no mortality in the 145,000 treated. A larger dose, i.e. a dessertspoonful, of 10% copper sulphate solution immediately prior to dosing with Tetram is the secret of success. Some heads of cattle which lost condition after Tetram were found to be heavily infected with liver-fluke but when hexachlorethane was given 10 to 14 days before Tetram was administered, the results were amazing.

R.T.L.

367—Journal of the Tennessee Academy of Science.

- †a. BRADLEY, R. E., 1953.—“Observations on the development of *Dirofilaria immitis* in mosquitoes.” 28 (3), 176.
 †b. BYRD, E. E., 1953.—“The number of sporocysts and cercariae resulting from exposures of physid snails to single and multiple ochetosomatid fluke eggs.” 28 (3), 177.
 †c. BYRD, E. E., 1953.—“The pattern of cercarial liberation from physid snails infected with a single ochetosomatid fluke egg.” 28 (3), 177–178.
 †d. HOLLOWAY, Jr., H. L., 1953.—“Observations on the morphology of the praesoma of *Neoechinorhynchus cylindricus* (Acanthocephala: Eoacanthocephala).” 28 (3), 181.
 †e. STOUGH, B. D., 1953.—“A new lungworm parasite from the bobcat, *Lynx rufus rufus*.” 28 (3), 189.
 †f. WARD, H. L., 1953.—“A new genus and species of *Neoechinorhynchidae* (Acanthocephala).” 28 (3), 189.
 †g. WEBER, T. B., 1953.—“Preliminary observations on the effects of P³² on the development of *Cotylophoron cotylophorum* (Digenea: Paramphistomidae).” 28 (3), 189–190.
 h. SMITH, C. S., JONES, F. E. & EYLES, D. E., 1953.—“Three additional Tennessee cases of *Hymenolepis diminuta* infection in man.” 28 (3), 196–197.

(367a) In laboratory tests on five species of mosquitoes *Dirofilaria immitis* developed to the infective stage in *Culex pipiens* and *C. quinquefasciatus*. Limited development only occurred in *Aedes aegypti*, *A. triseriatus* and *Anopheles quadrimaculatus* and the mortality rate was such that none of them survived long enough to permit of full development of the larvae.

R.T.L.

(367b) Byrd has exposed individual *Physa gyrina* to infection with a single egg each from one of four ochetosomatid trematodes. The snails were maintained throughout their lives and daily counts were made of the cercariae shed. Those snails infected with (i) *Ochetosoma ellipticus* discharged an average of 1,152 cercariae for 6 to 161 days (average 60.8). With (ii) *Neorenilifer amiarum* the average daily discharge was 1,010 cercariae for 7 to 82 days (average 26.3). With (iii) *N. orula* the daily average was 313 cercariae for 7 to 68 days (average 33.5) and with (iv) *Dasymetra conferta* the daily average discharge was 230 cercariae per snail for 12 to 60 days (average 39.9). In a second series individual snails were exposed to 1, 2, 3, 4 and 5 ochetosomatid eggs each. After the appropriate time the number of daughter sporocysts was counted. The average number of sporocysts for those exposed to two eggs was 52.86,

† Abstract of paper presented at the 14th Annual Meeting of the Association of Southeastern Biologists, North Carolina, April 16–18, 1953.

to 3 eggs 60.0, to 4 eggs 53.86 and to 5 eggs 80.29. The average number of cercariae produced per sporocyst per day of the shedding period was exposure to (i) 2 eggs 0.57 (ii) 3 eggs 0.54 (iii) 4 eggs 0.48 and (iv) 5 eggs 0.42. R.T.L.

(367c) The cercariae produced by infection of individual *Physa gyrina* infected with single eggs of 4 species of ochetosomatid flukes emerged in a characteristic pattern. A brief initial peak for a few days was followed by a sharp decline which persisted for 40 to 60 days succeeded by a second lower peak followed by a gradual pulsating decline with many secondary rises and falls. None of the molluscs lost its infection during the remainder of its life. R.T.L.

(367d) This author's abstract indicates that Holloway has made a detailed morphological study of the praesoma of *Neoechinorhynchus cylindratus* from the gut of fishes of the families Centrarchidae and Percidae [but no details are given]. R.T.L.

(367e) *Lynxrus wilsoni* n.g., n.sp. occurs in 25% of the bobcats collected in North Carolina and Virginia. It is said to differ from other genera of *Metastrongyloidea* in the bursal pattern, the morphology of the spicules and the position of the vulva [but no details are given]. R.T.L.

(367f) A new genus *Floridosentis* of the Neoechinorhynchidae with *F. elongatus* as genotype is recorded from a mullet *Mugil cephalus* caught near Miami, Florida. It is characterized by the number and arrangement of the proboscis hooks which occur in 8 diagonally longitudinal rows of about 7 hooks each. [A fuller description is given in *J. Parasit.*, 1953, **39**, 392-394. For abstract see *Helm. Abs.*, **22**, No. 110p.] R.T.L.

(367g) Eggs of *Cotylophoron cotylophorum* placed in Standard Reference Water containing P³² with 1.25 uc/ml., and lower, developed slightly more rapidly than the controls. In 2.5 uc/ml. the rate was comparable with that of the controls and in succeeding activities up to 2.5 uc/ml. it was progressively slower. In 50 uc/ml. no development occurred. In the lower concentrations hatching was greater than in the controls with inhibition becoming evident at 2.5 uc/ml. and declining rapidly in progressively higher concentrations. Abnormal development was frequently observed in all activities. R.T.L.

(367h) Three further instances of human infection with *Hymenolepis diminuta* are reported from Tennessee. All three cases occurred in a single negro family of 8 children in a rural community in Fayette County. The infected members were 2, 4 and 14 years of age. R.T.L.

368—Kartoffelbau. Hamburg.

- a. GOFFART, H., 1953.—"Alte und neue Erfahrungen zur Bekämpfung der Kartoffelnematode." *4* (4), 74-75.

(368a) In this brief general account of methods of controlling potato-root eelworm, Goffart mentions the effects of rotations of various lengths, trap-cropping with potatoes left in for only a few weeks, nematode-trapping amoebae and fungi, the effects of potato variety (early and main crop), the new work on breeding resistant varieties, and soil fumigation with such materials as D-D mixture and chloropicrin. B.G.P.

369—Khirurgiya. Moscow.

- a. SEMENOV, V. S., 1953.—[Results of surgery of echinococcosis.] Year 1953, No. 4, pp. 40-45. [In Russian.]
 b. OVNATANYAN, K. T., 1953.—[Clinical aspects, diagnosis and therapy of ascariasis of the liver and biliary tract.] Year 1953, No. 5, pp. 40-48. [In Russian.]

370—Klinicheskaya Meditsina. Moscow.

- a. MAKAROVA, E. P., 1953.—[Surgical treatment of pulmonary echinococcosis.] 31 (4), 18–21. [In Russian.]
- b. DZHAMANOVA, D. R., 1953.—[Eosinophilo-allergic reaction in diagnosis of echinococcosis.] 31 (4), 21–26. [In Russian.]
- c. SEMENOV, A. M., 1953.—[Clinical aspects of strongyloidiasis.] 31 (6), 60–63. [In Russian.]

371—Leaflet. United States Department of Agriculture.

- a. SPINDLER, L. A., 1953.—“Prevention of roundworms in pigs.” No. 5, 8 pp. [Revised.]

372—Maine Veterinarian.

- *a. WITTIER, J. F. & ROUNTREE, J. L., 1953.—“Lungworms in cattle.” October 1953.

(372a) Wittier & Rountree describe an outbreak of verminous pneumonia in a herd of dairy cattle in Maine. Adult cows and heifers were affected and seven out of fifty animals had to be killed. As the cattle had been on a pasture known to be grazed by white tail deer which are frequently infected with *Dictyocaulus viviparus*, this was believed to be a factor in the spread of the disease. [Based on an abstract in *Vet. Med.*, 1953, 48, 511.] S.W.

373—Medical Journal of Malaya.

- a. POLUNIN, I., 1953.—“The medical natural history of Malayan aborigines.” 8 (1), 55–114

(373a) Although filariasis affects a minority of Malayan aboriginal communities, those affected are widely dispersed throughout the country and are highly infected. In two communities the microfilarial rates exceeded 60%. *Ascaris lumbricoides* was rare but hookworm frequent among the Che Wong. R.T.L.

374—Medicina. Revista Mexicana.

- a. BIAGI F., F., 1953.—“Indices coproparasitológicos humanos en Escárcega, Camp.” 33 (676), 217–220.
- b. MENDEZ DEYNES, A., 1953.—“Consideraciones generales sobre la teniasis y en particular sobre su tratamiento con los derivados de acridina.” 33 (676), 221–236.
- c. RUIZ REYES, F., 1953.—“Terapéutica de la oncocercosis, uso actual de drogas específicas, suraminas y dietilcarbamazina.” 33 (682), 377–384.
- d. NETTEL F., R., 1953.—“Determinación de la ley matemática que sigue el fenómeno de parasitación por *Onchocerca volvulus*.” 33 (683), 406–417.
- e. SANTAELLA, R. B., 1953.—“Ascariasis y su tratamiento. Complicaciones observadas.” 33 (687), 501–508 ; (688), 530–535.

(374a) Faeces examinations (by Faust's method) of 117 children and 77 adults at Escárcega in the Yucatán Peninsula showed the following incidence of helminth infections: *Trichuris* 81%, hookworm 55.8%, *Ascaris* 25.3% and *Hymenolepis nana* 7.7%. P.M.B.

(374b) This is a general account of taeniasis followed by observations on treatment with Metoquina which was effective in all cases. Seven cases are briefly described and reference is made to 19 others which the author had treated successfully. P.M.B.

(374c) After three years of treating some thousands of onchocerciasis patients with hetrazan in Mexico, Ruiz Reyes has noted an amelioration in all symptoms. Cutaneous lesions tended to disappear; ocular lesions, particularly keratitis and conjunctivitis, showed an improvement and there were no new cases of blindness; the development of nodules was arrested, allergic reactions tended to become less intense and the number of microfilarial carriers was considerably reduced. He recommends the surgical removal of nodules followed by a course of hetrazan in which a total of 5 gm. is given over a period of ten days to attack the microfilariae, in preference to a 10 weeks' course of Bayer 205 (suramin) which acts against the adult worms and necessitates constant observation of the patient. Three or four such courses of hetrazan are recommended in the first year and two courses in each of the following two or three years. As a preventive 4 mg. of hetrazan per kg. body-weight once or twice weekly was found effective. P.M.B.

375—Medicina, Cirurgia, Farmácia. Rio de Janeiro.

- a. SILVA, W. B. P. DA, 1953.—“Tratamento da teníase.” No. 201, pp. 45-48.

(375a) Recent papers on the use of atebirin in the treatment of taeniasis are briefly summarized. R.T.I.

376—Medizinische Klinik.

- a. WIGAND, R. & WARNECKE, W., 1953.—“Benzinum Petrolii (DAB 6) in der Therapie der Taeniasis (*T. saginata*).” 48 (27), 964-965.

(376a) Wigand & Warnecke have treated 20 cases of *Taenia saginata* infection with benzine (Benzinum petrolii DAB 6), with complete success in 17. Although a scolex was recovered in only 5 cases it is considered that the solvent action of the benzine may have made the head unrecognizable. Patients were purged on the day before, and again one or two hours after treatment. The benzine was emulsified in gum arabic or liquid paraffin and was administered orally with coffee or (preferably) by duodenal sound in a dosage of 60 c.c. for adults, 40 c.c. for children aged 6-14, and 20 c.c. for children aged 2-5. This treatment, which caused occasional nausea when given by mouth, is contra-indicated in the presence of gastro-intestinal tract infections. Because of the risk of fire benzine is not recommended for home treatment. A.E.F.

377—Medycyna Weterynaryjna.

- a. STEFAŃSKI, W., 1953.—“Stan badań nad inwazyjnymi chorobami pastwiskowymi w Polsce i konieczność ich planowego zwalczania.” 9 (4), 152-156.
 b. PROST, M., 1953.—“Nowe poglądy na metodykę badań i problematykę ichtioparazytologiczną.” 9 (4), 156-158.
 c. JARA, Z., 1953.—“Schorzenia pasożytnicze powodujące nieplodność ryb (ze szczególnym uwzględnieniem ligulozy).” 9 (5), 205-207.
 d. MAREK, K., 1953.—“Ważniejsze choroby występujące u młodych ptaków.” 9 (6), 247-250.
 e. SZUPERSKI, T., 1953.—“Zmiany w wątrobie u srebrnych lisów na tle zatrucia czterochlorkiem etylenu.” 9 (6), 270-273.
 f. STEFAŃSKI, W. & TARCZYŃSKI, S., 1953.—“Motylczka mięśniowa (*Agamodistomum suis* Duncker, 1881)—larwa *Alaria alata* (Goetze, 1782).” 9 (7), 294-297.
 g. STEFAŃSKI, W., 1953.—“Więcej energii i inicjatywy w zwalczaniu chorób inwazyjnych.” 9 (8), 337-339.

(377a) Stefański, in his paper delivered to the Parasitological Committee of the Polish Academy of Science, reviews critically the achievements in the investigation of parasitic diseases in Poland. He stresses the necessity of planned researches into the problems of Fasciola, Dicrocoelium, Moniezia and other parasites of domestic animals and into their intermediate hosts. C.R.

(377b) Prost in this paper stresses the necessity of full parasitological investigations of all fish found in Poland. C.R.

(377c) Jara describes the influence of the plerocercoids of *Ligula intestinalis* and *Schistocephalus solidus* on the fertility of fish. In the fish parasitized by the plerocercoids of *L. intestinalis* oogenesis reached only primary oocytes and spermatogenesis was arrested at the stage of spermatogony. The author supports the theory of Kerr according to whom the presence of plerocercoids of *L. intestinalis* influences the activity of the pituitary. In the pituitary of sticklebacks parasitized by plerocercoids of *S. solidus* the changes are not so distinct, but it is not certain if the eggs produced by them can be fertilized. C.R.

(377d) Marek, in his paper on the more important diseases of young birds, refers to *Syngamus trachea* occurring commonly in some parts of Poland in chickens, pheasants and turkeys. He recommends the treatment of affected birds with 0.5 ml.-1.0 ml. of a mixture of Lugol's solution with glycerine intratracheally, or with 5% sodium salicylate. C.R.

(377e) Szuperski, during the pelting season, examined 120 silver foxes dosed during their life with Swedish capsules containing tetrachlorethylene and chenopodium oil. On post-mortem examination the chief lesions found in the liver in 95% of cases were of acute toxic hepatic dystrophy. He tested these capsules on three dogs and found them also to be toxic to them. C.R.

(377f) The authors fed a dog with 120-150 of the larvae known as *Agamodistomum suis* and 44 days later they found the eggs of *Alaria alata* in the faeces. Nine months later the dog was killed and 104 specimens of *A. alata* were found. This experiment confirms the unpublished work of Ejsmont who established before the last war that *Agamodistomum suis* is the larval stage of *A. alata*. C.R.

(377g) Stefański notes general improvements in the organization of applied parasitology in post-war Poland. He suggests that more energy and initiative is necessary to control the parasitic diseases. In his opinion, losses among stock could be reduced to a minimum if all known data were used in practical application. C.R.

378—Mikrokosmos.

- a. HIRSCHMANN, W. & RÜHN, W., 1953.—“Milben und Fadenwürmer als Symphoristen und Parasiten des Buchdruckers.” 43 (1), 7-10.

(378a) Hirschmann & Rühn briefly describe the mites and nematodes found in association with the “typographer” bark-beetle. The nematodes listed (some of which are figured) are in three groups: (i) those found under the wing sheaths, *Fuchsia buetschlii buetschlii*, *Diplogasteroides halleri*, *Bursaphelenchus eidmanni*, *Cryptaphelenchus macrogaster macrogaster* and *Ditylenchus major*, (ii) those recovered from the end-gut, *Parasitorhabditis obtusa obtusa*, and (iii) those recovered from the body-cavity, *Contortylenchus diplogaster* and *Polymorphotylenchus typographi*. A.E.F.

379—Nachrichtenblatt des Deutschen Pflanzenschutzdienstes.

- a. GOFFART, H., 1953.—“Beobachtungen an pflanzenschädlichen Nematoden I.” 5 (10), 150-153.
b. MEYL, A. H., 1953.—“Über das Vorkommen von Nematoden in faulenden Zitronen und das Auftreten männlichen Individuen von *Aphelenchus avenae* Bast.” 5 (10), 153-154.

(379a) Goffart gives an account of four separate observations. (i) In 1951 *Ditylenchus dipsaci* was found causing damage to dwarf beans and celery: the symptoms are described. This is the first record of stem eelworm damage to beans in Germany. Celery is not often attacked but the disease is not infrequent in the marshy land of the west coast of Schleswig-Holstein. (ii) Galls on the leaves of *Calamagrostis* (probably *C. lanceolata*) are described. In them were found all stages of the nematode *Ditylenchus graminophilus*, of which measurements are given. In the older, black galls the fungus *Dilophospora alopecuri* was also present. (iii) From the roots of banana (*Musa cavendishii*) growing in the Münster Botanical Gardens, and showing softening and brown patches, Goffart isolated nematodes which he has identified as *Pratylenchus musicola*. He gives a short description of the nematode with measurements and diagrams. (iv) *Meloidogyne* sp. has been found on 13 species of weeds growing in a field which had been under cultivation for several years after being heath land. In green-house pot tests with this nematode Goffart found no galls on the roots of oats, maize, onion, potato, rape, pea and tobacco. Twelve other plants were galled in varying degree, the most heavily being red clover, cosmos, *Helichrysum*, antirrhinum, carrot and corn salad. More lightly galled were tomato, aster, sugar-beet, serradilla, sweet william and bean. Forty-two species from the glass-houses of the Münster Botanical Gardens were also found bearing root galls. Altogether 41 new host records for *Meloidogyne* sp. are given. M.T.F.

(379b) Meyl examined the relative numbers and sexes of the nematode fauna associated with rotten lemons on the island of Ischia. He comments on the males of *Aphelenchus avenae* which he found and gives dimensions and one drawing. J.B.G.

380—Nature. London.

- a. BISHOP, D. D., 1953.—“Hatching the contents of cysts of *Heterodera rostochiensis* with alternating temperature conditions.” [Correspondence.] 172 (4389), 1108.

(380a) Bishop records that hatching treatments involving an alternation of temperatures (25°C. and 15°C.) results in a higher hatch than is obtained when cysts are maintained at either temperature. The effect is visible when the cysts are maintained at 25°C. and exposed to 15°C. for five hours twice per week, but it is more marked when they are exposed to the lower temperature five times a week.

D.W.F.

381—New York State Journal of Medicine.

- a. WEIL, A. J., 1953.—“Hookworm infection as a diagnostic problem in New York City.” 53 (9), 1085-1087.

382—New Zealand Medical Journal.

- a. ROBINSON, R. G., 1953.—“Primary hydatid disease of the brain. Report of a case.” 52 (289), 194-196.

383—New Zealand Veterinary Journal.

- a. WHITTEN, L. K. & MACFARLANE, I. M., 1953.—“The effect of monthly anthelmintic treatment on the growth of young sheep rotationally grazed on hill pastures.” 1 (6), 150-153.

(383a) Three groups of lambs were drenched monthly from weaning in January until July. Group A received suspensions of 20 gm. of phenothiazine, group B received 28 ml. of 2% copper sulphate-nicotine sulphate and group C were kept as controls. The monthly mean body-weights are tabulated. The egg counts and body-weights confirm the superiority of phenothiazine as an anthelmintic but attention is drawn to the difference in cost of the two treatments in New Zealand. The six monthly treatments with phenothiazine came to two shillings and tenpence three farthings while the six copper sulphate-nicotine sulphate treatments cost only threepence. The young sheep were grazed rotationally on hill pastures, each paddock being grazed for one week and rested for three to four weeks, but this did not prevent the development of moderately heavy infections over the critical autumn months.

R.T.L.

384—Notulae Naturae of the Academy of Natural Sciences of Philadelphia.

- a. MOORE, J. P., 1953.—“Three undescribed North American leeches (Hirudinea).” No. 250, 13 pp.

(384a) *Placobdella multilineata* n.sp., which has been known for many years in the southern U.S.A. but has not previously been described, differs from *P. ornata* by lacking a marginal web, by the longitudinal stripes of the colour pattern (the median stripe being unbroken) and by the smaller, flatter tubercles which are less roughened by sensory papillae. *Macrobodella ditetra* n.sp., also frequently known in the southern U.S.A. as a parasite on frogs, but previously undescribed, is the southern equivalent of *M. decora* which occurs further north. The third species mentioned is *Dina bucera* Moore, 1947 which is now more fully described. It differs from *D. fervida* by its smaller size, by the number of eyes, the position of the gonopores and the smaller number of testisacules.

P.M.B.

385—Nutrition Abstracts and Reviews.

- a. HUNTER, G. C., 1953.—“Nutrition and host-helminth relationships.” 23 (4), 705-714.

(385a) Hunter brings together, with constructive criticism, many of the recently published results on the relation of host nutrition to helminth parasitism. He reviews the effect on the helminths of the various components of diet, viz., vitamins, proteins, carbohydrates and minerals. The effect of the helminths on the nutrition of the host and the effect of the state of nutrition of the host on helminthiasis are also considered.

R.T.L.

386—Pacific Science. Honolulu.

- a. HANSON, M. L., 1953.—“A discussion of the trematode genus *Schistorchis* (family Lepocreadiidae) with descriptions of two new species from Hawaii.” 7 (4), 447-452.

(386a) To the three previously described species of *Schistorchis* are now added from Hawaii *S. stenosoma* n.sp. and *S. zanzli* n.sp. A key to the genus is provided. *S. stenosoma* n.sp. from *Cantherines pardalis* has 11 round testes in a single median row. The uterus extends as far back as the middle of the ovary. There are rows of short, blunt and widely spaced spines in front of the acetabulum. Each caecum terminates in an anus. *S. zanzli* n.sp. from *Zanclus cornutus* resembles closely *S. stenosoma*. It has body spines and 11 testes in a single median row but the oral sucker is more rhomboidal, the pharynx more rectangular and the acetabulum more posterior. The uterus is preovarian. There are fewer and smaller vitelline follicles and the testes are ellipsoid or ovoid. *Schistorchis* was placed with *Apocreadium* and *Choanodera* in a new family Schistorchiidae by Yamaguti in 1942, but Hanson proposes to suppress Schistorchiidae as a synonym of Lepocreadiidae and places *Schistorchis* in the subfamily Homalometroninae.

R.T.L.

387—Parasitology.

- a. FYFE, M. L., 1953.—“*Otodistomum plunketi* n.sp., a large trematode from a Lord Plunker's shark, *Scymnodon plunketi* (Waite).” 43 (3/4), 187-190.
 b. REES, G., 1953.—“Some parasitic worms from fishes off the coast of Iceland. III. Monogenea, Nematoda, Acanthocephala.” 43 (3/4), 193-198.
 c. ANDERSON, R. C., 1953.—“*Dipetalonema sprengi* n.sp. from *Castor canadensis* Kuhl.” 43 (3/4), 215-221.
 d. CUNLIFFE, G. & CROFTON, H. D., 1953.—“Egg sizes and differential egg counts in relation to sheep nematodes.” 43 (3/4), 275-286.
 e. MAWSON, P. M., 1953.—“Parasitic Nematoda collected by the Australian National Antarctic Research Expedition: Heard Island and Macquarie Island, 1948-1951.” 43 (3/4), 291-297.

(387a) *Otodistomum plunketi* n.sp. from *Scymnodon plunketi* is distinguished from *O. veliporum* and *O. pristiophori* by its large size (average 65 mm. by 33 mm.) and shape. The caeca are undulating. The ovary and testes are well separated. There is a receptaculum seminalis. The eggs measure 0.111 mm. by 0.075 mm.

R.T.L.

(387b) Rees records five new hosts for helminths in fishes caught off the coast of Iceland, viz., *Contracaecum* sp. larva in *Anarhichas minor*, *Anisakis* or *Porrocaecum* larvae in *Anarhichas minor*, *Gadus callarias* and *Clupea harengus*, and *Echinorhynchus gadi* in *Brosme brosme*. R.T.L.

(387c) *Dipetalonema sprengi* n.sp. from the peritoneal cavity of *Castor canadensis* in Ontario differs from *D. arbuta* in the larger size of the male (22 mm.-37 mm.) and of the female (58 mm.-82 mm.). The eggs measure 48 μ -55 μ and the fully developed embryos 0.4 mm. The spicules are also longer (0.27 mm. and 0.17 mm.). The four median post-anal papillae are arranged in a single transverse row.

R.T.L.

(387d) Cunliffe & Crofton propose a new solution of the problem of identifying sheep nematodes from fresh faecal eggs in a McMaster slide. No attempt is made to identify individual eggs (apart from *Strongyloides* and *Nematodirus*) but each egg is sorted into one of three width categories and one of two length categories (by viewing its camera-lucida projection on a special classifying scale). After thus classifying at least 100 eggs, a set of simple equations is applied to the category totals to yield estimates of egg numbers in the following five groups: (i) *Haemonchus contortus*, (ii) *Cooperia curticei*, (iii) *Trichostrongylus axei*, (iv) *T. vitrimus* and *Oesophagostomum venulosum*, (v) *Bunostomum trigonocephalum*, *Chabertia ovina* and *Ostertagia* spp. Their material did not include *Gaigeria*, *Oesophagostomum columbianum* or *Ostertagia marshalli*. The method was based on measuring, in units of 2.5 μ , one uterine egg from 100

females of each species, and studying the normalized frequency distributions. [The last word on p. 282 should be "width", not "length"— a confusing misprint.] B.G.P.

(387e) Mawson lists under their hosts and gives succinct descriptions of the 14 helminths collected at Heard Island and Macquarie Island in 1948–1951 by the Australian National Antarctic Research Expedition. Of these four are new. *Contracaecum heardi* n.sp. from various penguins is distinguished by the presence of a double row of preanal papillae. *Parafilaroides hydrurgae* n.sp. from the respiratory tract of *Hydrurga leptonyx* is characterized by the greater length of its body and of the spicule and gubernaculum. *Stegophorus heardi* n.sp. from two petrels differs from *S. paradeliae* in the sinuous form of the vestibule and in the relative size of the spicules (1:6.3–10), and from *S. pachyptilae* in the size of the eggs, position of the cervical papillae and the number of collar serrations (40–44). *Desmidocercella australis* n.sp. from the respiratory tract of *Phalacrocorax atriceps nivalis* differs from the closely related *D. incognita* in the presence of caudal alae, the absence of a fourth pair of caudal papillae and the small size of the buccal capsule. Other species mentioned are *Stomachus* spp., *Terranova piscium*, *Contracaecum radiatum*, *C. osculatum*, *Paranisakiopsis* sp., *Seurattia shipleyi*, *Ascarophis nototheniae*, *Stegophorus paradeliae*, *Capillaria convoluta*; a female *Filaria* (sensu lato), in which the head cuticle is thickened without forming "epaulettes", is described from a blood vessel in *Mirounga leonina*. R.T.L.

388—Pediatriya. Moscow.

- a. STEFANSKAYA, A. F., 1953.—[Problem of salivation in ascariasis in children.] Year 1953, No. 3, pp. 53–56. [In Russian.]
- b. REBIKOV, E. I., 1953.—[Diagnosis and therapy of obstruction of the common bile duct in ascariasis in children.] Year 1953, No. 3, pp. 64–67. [In Russian.]

389—Phytopathology.

- a. GERDEMANN, J. W. & LINFORD, M. B., 1953.—"A cyst-forming nematode attacking clovers in Illinois." 43 (11), 603–608.

(389a) Gerdemann & Linford have found a species of *Heterodera* widely distributed in Illinois in association with *Trifolium repens* and *T. pratense*. They describe the cysts and larvae but have found no males. The parasite resembles that found on clovers by other workers and differs from *H. schachtii* only in the host range and in the occurrence of a transitory, yellow colour when the mature cysts change from white to brown. In green-house cultures at temperatures from 15°C–27°C a single generation completed development from larva to larva in about 40 days and the following generation had produced larvae after a further 37 days. The gelatinous egg sacs attached to five cysts had an average of 180 empty egg membranes and 108 eggs each. Host range trials in both naturally and artificially infested soils were made and 108 eggs each. Heavily infested with abundant mature cysts were *Trifolium repens* (white and Ladino clovers), *T. hybridum*, *Rumex crispus* and *Spinacia oleracea*. Seedlings of the first two were often killed by heavy infestations; spinach is a new host record for the clover *Heterodera*. Medium numbers of cysts were found on *Trifolium pratense*, *Lespedeza stipulacea* (new host record), *Phaseolus vulgaris*, *Pisum sativum* and *Dianthus caryophyllus*. A few cysts were found occasionally on *Melilotus alba*, *M. officinalis*, *Beta vulgaris* (sugar and garden beets), *Trifolium incarnatum*, and *Lotus corniculatus*. No cysts were found on *Medicago sativa*, *Glycine max*, *Lycopersicum esculentum*, *Brassica oleracea*, *B. arvensis*, *Daucus carota*, *Avena sativa* and *Zea mays*, but larvae were found in the roots of the first two. From their observations on the morphology and host range of this nematode, the authors consider that it should be regarded as *Heterodera schachtii* var. *trifolii* Goffart rather than *H. trifolii* (Goffart) Oostenbrink. M.T.F.

390—Plant Pathology. London.

- a. BROWN, E. B. & FRANKLIN, M. T., 1953.—“Experiments on control of eelworm in black currants.” 2 (3), 101–102.
- b. BRYDEN, J. W., EMPSON, D. W. & SOUTHEY, J. F., 1953.—“Eelworm in *Gypsophila* and *Aubrietia*.” 2 (3), 106.

(390a) Spraying with 0.025% parathion on 1st June reduced the numbers of live eelworms in the buds of black currant bushes, as did also severe pruning carried out at the same time. A second spraying on 25th June appeared to be without effect. The treated bushes showed less damage than the untreated in the following year. Appreciable numbers of black currant eelworms were found in the weeds surrounding infested bushes. M.T.L.

(390b) *Gypsophila paniculata* L. and *Aubrietia deltoidea* DC. have been found infested with *Ditylenchus dipsaci*. Symptoms of dwarfing, distortion and failure to flower were observed in both hosts. Inoculation tests indicated that the race of nematode concerned was the same as that which causes disease in *Phlox paniculata*. M.T.L.

391—Presse Médicale.

- a. GALLIARD, H., LAPIERRE, J., LARIVIÈRE, M. & BERDONNEAU, R., 1953.—“Résultats du test de Thorn à l'hormone corticotrope ACTH dans quelques cas d'infection par les helminthes.” 61 (60), 1205–1206.

(391a) In 26 cases of infection with various helminths Thorn tests with 25 mg. of ACTH intramuscularly showed no consistent effects in reducing eosinophilia, even in a number of persons infected with the same species. In patients with an eosinophilia irreducible to ACTH (i.e. a negative result) it is concluded that there is a slow response of the suprarenal cortex which is not overcome by the small amount of ACTH used in Thorn tests. In most cases, whether positive or negative to the test, the total leucocyte count was practically unaltered, whereas it is frequently doubled in unparasitized persons treated with the drug. The patients included twelve cases of loiasis nine of whom were negative and three positive to Thorn tests. Of six with *Strongyloides stercoralis* three were positive and three negative. P.M.L.

392—Proceedings of the American Society for Horticultural Science.

- a. JOLEY, L. E. & WHITEHOUSE, W. E., 1953.—“Root knot nematode susceptibility—factor in the selection of pistachio nut rootstocks.” 61, 99–102.

(392a) In testing several species and hybrids of *Pistacia* for their suitability as rootstocks the authors found some bearing galls due to *Meloidogyne* sp. The degree of infestation varied, being highest in seedlings of *P. vera* and *P. vera* × *P. terebinthus* and low or absent in crosses of *P. vera* with *P. atlantica*, *P. integerrima* and *P. chinensis*, and in *P. mutica* × *P. chinensis*. M.T.L.

393—Proceedings of the Indiana Academy of Science.

- a. CABLE, R. M., 1953.—“An investigation of marine trematodes in Puerto Rico.” [Abstract.] Year 1952, 62, 298.
- b. KNIGHT, P. L., 1953.—“In vitro survival time of swine lungworms.” Year 1952, 62, 319.
- c. MIZELLE, J. D. & BERBERIAN, J. A., 1953.—“Developmental rate of the sheep stomach worm, *Haemonchus contortus*.” Year 1952, 62, 320.
- d. COLEMAN, R. M., 1953.—“Histochemical demonstration of vitamin C in *Hymenolepis nanus* var. *fraterna*.” Year 1952, 62, 321–322.
- e. MONACO, L. H., 1953.—“Effect of cyanide on the oxygen consumption of developing ova of *Ascaris lumbricoides* var. *suum*.” Year 1952, 62, 323–324.
- f. SHAVER, R. J., 1953.—“The effects of -10°C. and -16°C. on the viability and infectivity of *Trichinella spiralis* larvae.” Year 1952, 62, 325–330.

(393a) Cable's brief abstract states that 51 species of cercariae were found during an 11-month study of larval and adult stages of marine trematodes in Puerto Rico and the life cycles of several of these were determined [no details are given]. R.T.L.

(393b) In experiments to determine the maximal survival time of *Metastrongylus apri* and *Choerostrongylus pudendotectus*, removed from the posterior lobes of the lungs of pigs slaughtered in Mishawaka, Indiana, the best results were obtained in modified Bueding's basic filarial medium (pH 7.0, sodium chloride, potassium chloride, magnesium chloride, calcium chloride and sodium phosphate). In this solution at 35°C. survival was limited to approximately five days, at room temperature to 14 days and at 4°C. to one day. Continuous aeration of the media did not lengthen the survival time. R.T.L.

(393c) The ova of *Haemonchus contortus* developed from the morula stage to infective larvae in 60 hours in tap-water or faeces-decoction filtrate in uncovered containers and in 65 hours in covered containers. The minimum temperature lethal to the ova was 5.56°C. and that for the production of third-stage larvae was 14.4°C. in faeces-decoction filtrate but only 1% reached this stage in 251 hours at this temperature. For the development of 100% the minimum temperature was 17.8°C. in faeces-decoction filtrate and 21.1°C. in tap-water. The former required 201.5 hours, the latter 156 hours. 36.7°C. was the maximum temperature permitting development to third-stage larvae but only 10% attained this stage. At 35.6°C. all cultures developed 100% infective larvae in 70-80 hours. 37.8°C. proved lethal in five days. Exposure of ova at 4°C. proved lethal in 82 hours. When removed from 4°C. to optimum temperature (33.3°C.) after exposure for 11, 34 and 59 hours there was a progressive retardation of development of infective larvae. Ova incubated at 33.3°C. and removed at periods of 11 and 34 hours showed no further development, but ova exposed for 59 hours before removal to 4°C. developed to third-stage larvae proving that once the advanced second stage has been attained the development and survival of infective larvae are not inhibited. R.T.L.

(393d) Ascorbic acid has been demonstrated in *Hymenolepis nana* var. *fraterna*. Mice are known not to require this in their diet under normal conditions. Since vitamin C possesses strong reducing powers and is capable, with glutathione, of forming an oxidation-reduction system it has a possible value as a respiratory system in this tapeworm. R.T.L.

(393e) Four concentrations of HCN varying from 0.78×10^{-3} to 5.0×10^{-3} M showed a progressively powerful action in depressing respiration in the unsegmented ova of *Ascaris lumbricoides* var. *suum*. For those in the early stages of cleavage the maximum effect was produced much earlier. The conclusion drawn from the experiments is that initial oxidation in the uncleaved egg involves more fat metabolism than in the 2 to 4-celled embryo, and that in the latter a beginning of carbohydrate metabolism may occur. R.T.L.

(393f) In experimentally infected rats the infectivity of *Trichinella spiralis* larvae for test animals begins on the 18th day and increases progressively to the 28th day after ingestion of infected rat muscle. A rapidly attained temperature of -16°C. maintained for three minutes, followed by quick thawing, is 100% lethal to infections, but one-minute exposures are not 100% lethal. The viability of larvae exposed to -10°C. for 1, 3, 5 and 10 minutes varies inversely with the period of exposure. A ten-minute exposure is 100% lethal. R.T.L.

394—Proceedings of the Society for Experimental Biology and Medicine.

a. BERG, E., 1953.—"Effect of castration in male mice on *Schistosoma mansoni*." 83 (1), 83-85.

(394a) In surgically castrated white mice infected with *Schistosoma mansoni*, the male and female worms underwent normal development but the number of worms recovered was much less than that from infected control mice. This difference was confined to the number of male worms. Castration, which altered the testicular hormones, in some way affected the male worms. R.T.L.

395—Proceedings of the Zoological Society of Bengal.

- a. SARKAR, H. L., 1953.—“On a new Acanthocephala, *Pallisentis nandai*, from the fish *Nandus nandus* (Hamilton), with notes on the other species of the genus.” 6 (2), 139-147.

(395a) *Pallisentis nandai* n.sp. from the edible fresh-water fish *Nandus nandus* is the first acanthocephalan to be recorded from this host. The measurements and hosts of the three species of *Pallisentis* are tabulated. *P. nandai* differs from (i) *P. umbellatus* by having six instead of eight to ten hooks on each circle of the proboscis and has 13 to 14 instead of nine circles of collar spines and 28 to 55 instead of 20 to 24 circles of body spines, and from (ii) *P. nagpurensis* in that the union of the vasa efferentia is in front of the tip of the prostatic gland, not at the side and in the vas deferens being open at the posterior end, not at the anterior end as in *P. nagpurensis*. [This species has already been recorded as a new species in an author's abstract published in *Proc. Indian Sci. Congress*, 40th (1953), pp. 192-193. For abstract see *Helm. Abs.*, 22, No. 127m.]

R.T.L.

396—Proceedings of the Zoological Society of London.

- a. PORTER, A., 1953.—“Report of the Honorary Parasitologist for the year 1952.” 123 (2), 253-257.
b. MANN, K. H., 1953.—“A revision of the British leeches of the family Glossiphoniidae, with a description of *Batracobdella paludosa* (Carena, 1824) a leech new to the British fauna.” 123 (2), 377-391.

(396b) Mann has applied the neurosomic theory of Castle and Moore to a revision of the British leeches of the family Glossiphoniidae and has provided a key to the genera and species. An account is given of their principal variations. The occurrence of *Batracobdella paludosa* in Britain is reported for the first time. The division of *Glossiphonia complanata* into the subspecies *concolor* and *typica* and of *G. heteroclita* into the subspecies *hyalina* and *papillosa* is not upheld.

R.T.L.

397—Publicações Avulsas do Instituto Aggeu Magalhães. Recife.

- a. BARBOSA, F. S., DOBBIN, Jr., J. E. & COELHO, M. V., 1953.—“Infestação natural de *Rattus rattus frugivorus* por *Schistosoma mansoni* em Pernambuco.” 2 (4), 43-46. [English summary pp. 45-46.]

(397a) Heavy natural infections with *Schistosoma mansoni* were found in 16 out of 27 *Rattus rattus frugivorus* trapped at Paulista, Pernambuco, Brazil, where schistosomiasis mansoni is already known to be endemic in man. Adult worms of both sexes were found in the mesenteric veins, with characteristic eggs in the liver and in the faeces. Attention is drawn to the epidemiological significance of this discovery in view of the large numbers of rats in the rural areas of Brazil and the possibility of other animals serving as reservoir hosts. The average incidence in 3,617 *Australorbis glabratus* was 10.5%, in some localities reaching over 50%.

P.M.B.

398—Report of the Bilharzia Snail Destruction Section, Ministry of Public Health, Egypt.

- a. EGYPT, MINISTRY OF PUBLIC HEALTH, 1953.—“Annual report.” 8th (1949-50), 35 pp.

(398a) Molluscan control by the Bilharzia Snail Destruction Section of the Ministry of Public Health in Egypt was extended in 1949-50 and a more extensive effort was made in the oases of the western desert. The yearly main survey had been advanced from April to March in 1949. The report deals separately with the work carried out in each province. Although the law 29/1948 gave the Section the legal right to demand clearance of distributory streams, a large proportion of the land owners failed to respond and the Section had to undertake the work at their expense. The percentage of infection found in the snails collected and

the number and length of the streams treated are now tabulated under each province and oasis. As in past years, it has not been possible to achieve full control but it is claimed that within the measure of the effort made, the results of the control work were satisfactory. R.T.L.

399—Report of the Department of Agriculture and Stock, Queensland.

- a. ANON., 1953.—“(i) Science Branch: miscellaneous. (ii) Veterinary Services Branch: internal parasites. (iii) Pig Branch: North Queensland area.” Year 1952–53, pp. 63, 69, 91.

(399a) The Science Branch of the Division of Plant Industry reports that wider distribution of *Aphelenchoides ritzema-bosi* within the state of Queensland has been recorded and critical work on the control of this parasite of chrysanthemums has been commenced. The Veterinary Science Branch of the Division of Animal Industry reports that favourable seasonal conditions have reduced losses from internal parasitism although loss of condition and deaths occurred in calves in the coastal districts. *Bunostomum phlebotomum* and *Dictyocaulus viviparus* were also encountered. In sheep, *Haemonchus contortus* was most frequently met with, but *Trichostrongylus* spp. and *Oesophagostomum columbianum* were also recorded. The most serious losses in sheep were in the Darling Downs and coastal districts. The Pig Branch reports that the continued campaign against parasites has had pronounced results. The reduction in *Ascaris* infections is believed to be largely responsible for the lower incidence of pneumonia. R.T.L.

400—Revista Clínica Española.

- a. MARCOS LANZAROT, M. & SÁNCHEZ-LUCAS, J. G., 1953.—“Lesiones vasculares en la triquinosis.” 48 (1), 34–37.

(400a) To illustrate the possible confusion of the symptoms of periarteritis nodosa with those of trichinosis, a case of trichinosis is described in which there were no muscular or gastro-intestinal symptoms after the initial transitory fever and palpebral oedema, but a series of arterial symptoms including thrombotic occlusion of the right external iliac artery with gangrene of the leg. P.M.B.

401—Revista Cubana de Pediatría.

- a. BASNUEVO, J. G., COWLEY CHÁVEZ, O., BLANCO RABASSA, E., ACHKAR, R. & SOLER DELGADO, F., 1953.—“La mezcla hexilresorcinol, acacia, kaolín e hidróxido de aluminio (santokín), en el tratamiento de la tricocefaliasis.” 25 (5), 288–303. [English summary pp. 300–301.]

(401a) The latest modification of the formula of Basnuevo *et al.* for the treatment of trichuriasis with hexylresorcinol enemas is as follows: hexylresorcinol (santokín) 3 gm., acacia 90 gm., colloidal kaolin 30 gm., colloidal aluminium hydroxide 30 gm., tepid water 900 c.c. The addition of the colloidal kaolin and aluminium hydroxide raises the specific gravity to 1.066, similar to that of a 10% barium suspension. A clinical cure results after one enema, but three to five may be necessary to ensure that no worms or ova remain in the intestine. The volume of the enema is calculated at the rate of 15–20 c.c. per lb. body-weight, with a maximum of 1,500 c.c. P.M.B.

402—Revista Española de las Enfermedades del Aparato Digestivo y de la Nutrición.

- a. GARCÍA-BARÓN, A., 1953.—“Sobre el diagnóstico de las complicaciones abdominales agudas producidas por los *Ascaris lumbricoides*.” 12 (1), 47–53.
b. OLIVER-PASCUAL, E. & OLIVER-PASCUAL, A., 1953.—“Anemias megaloblásticas por botriocéfalo y por balantidium en el hombre.” 12 (1), 54–66.
c. ROMERO CALATAYUD, A., 1953.—“Helmintiasis intestinales.” 12 (1), 67–79.
d. RUIZ, M., 1953.—“*Ascaris lumbricoides* en el ángulo esplénico del colon.” 12 (1), 80–82.
e. XIMÉNEZ DEL REY, CASTEJÓN, B., LUCAS, G. & HERNÁNDEZ, R., 1953.—“Algunas notas clínicas sobre anquilostomiasis.” 12 (1), 83–91.

403—Revista Ibérica de Parasitología.

- a. LÓPEZ-NEYRA, C. R., 1953.—“Consideraciones sobre Acolecidae, Amabiliidae y Nematoparataeniidae.” 13 (2), 119-184. [English summary pp. 173-174.]
- b. DÍAZ DÍAZ, E., 1953.—“Profilaxis de la bronconeumonía verminosa y equinorriñosos porcina.” 13 (2), 193-198.
- c. PÉREZ FONTANA, V., 1953.—“Investigación de huevos de helmintos aplicada a la epidemiología de la hidatidosis.” 13 (3), 221-225.
- d. LÓPEZ-NEYRA, C. R., 1953.—“Determinación de verminosis intestinales caninas, fase ineludible de toda lucha antihidatídica.” 13 (3), 227-246.
- e. GUEVARA POZO, D., 1953.—“Anomalía en el aparato genital de una hembra de *Ascaris lumbricoides* del cerdo.” 13 (3), 247-257. [English summary p. 256.]
- f. LÓPEZ-NEYRA, C. R. & ARANDES ADÁN, R., 1953.—“Segundo caso de dirofilariosis conjuntival humana en España.” 13 (4), 323-331.
- g. GUEVARA POZO, D., 1953.—“Obtención de huevos y larvas de áscaris en forma aséptica.” 13 (4), 333-338.
- h. TARAZONA VILAS, J. M., 1953.—“Sobre unas microfilarias halladas en un *Ctenocephalus canis* (Curtis 1876).” 13 (4), 363-374. [English summary p. 373.]
- i. REYES PUGNAIRE, M. DE, 1953.—“Las filarias en los territorios de la Guinea continental española.” 13 (4), 375-378.

(403a) López-Neyra is of the opinion that the families Acolecidae, Amabiliidae and Nematoparataeniidae are unnatural groups based on teratological specimens. In support of this he presents an analysis of these families with generic and specific diagnoses, a list of synonyms and descriptions of the morphology, and also a number of analytical and comparative tables. There is an extensive bibliography and the paper is illustrated by a number of line drawings. S.W.

(403b) As a means of control of lungworm and acanthocephalan infections in pigs, Díaz Díaz recommends ringing the pigs in order to prevent their rooting and eating the intermediate hosts. P.M.B.

(403c) Eggs of *Echinococcus granulosus* and various other helminths were readily found in specimens of dog faeces when examined by the following method: after washing and concentration by sedimentation or flotation in solution containing the necessary elements for fixing and staining (500 gm. 10% formalin, 50 gm. 5% Lugol's solution, 5 c.c. acetic acid), one or more drops containing the eggs are placed on fine filter paper, dried gently over a spirit flame, then placed in a petri dish and damped with xylol. The preparation can be examined microscopically directly on the filter paper or it may be mounted. P.M.B.

(403d) López-Neyra considers that for the control of hydatid disease the faeces of all dogs suspected of carrying *Echinococcus granulosus* should be examined by direct microscopical examination, by sedimentation and by flotation if necessary. Various methods are described and keys are provided for the differentiation of the eggs and gravid segments of helminths recorded for the dog. R.T.L.

(403e) A specimen of *Ascaris lumbricoides* with three uterine branches containing eggs which developed normally is recorded from a pig. P.M.B.

(403f) A female *Dirofilaria conjunctivae* was present in a small subcutaneous nodule excised from the abdomen of a man in Castellón de la Plana, Spain. This is believed to be the twenty-fourth human case recorded in the literature and the second in Spain. P.M.B.

(403g) A technique is described and the apparatus illustrated for obtaining aseptic pig ascaris ova and larvae, using a 13% sodium hypochlorite solution to remove the albuminoid and chitinous layers of the shell, followed by agitation with specially prepared powdered glass to release the larvae. P.M.B.

(403h) Filarial larvae at three different stages of development found in a *Ctenocephalus canis* were tentatively diagnosed as *Microfilaria immitis*, thus giving further evidence that this flea is a vector. The measurements of the eight different microfilariae found in the dog are tabulated. P.M.B.

(403i) Day and night thick blood films and skin snips from 100 unselected patients from various parts of continental Spanish Guinea in hospital at Bata showed the following incidence of filarial infections: *Acanthocheilonema perstans* 43%, *Loa loa* 15%, *Onchocerca volvulus* 17% and *Dipetalonema streptocerca* 25%. Although the clinical signs observed included hydrocele in both *L. loa* and *O. volvulus* infections, and elephantiasis in association with *O. volvulus*, *Wuchereria bancrofti* was apparently absent. P.M.B.

404—Revista del Instituto de Salubridad y Enfermedades Tropicales. Mexico.

- a. MAZZOTTI, L., 1953.—"Ensayos terapéuticos con hetrazán en la oncocercosis equina." 13 (1), 17-21. [English summary p. 20.]
- b. MARTÍNEZ BÁEZ, M., 1953.—"Nuevos datos acerca de la acción del hetrazán sobre *Onchocerca volvulus* al estado adulto." 13 (1), 71-75. [English summary pp. 74-75.]
- c. TREVIÑO V., A. & SANDOVAL C., A., 1953.—"Tratamiento con atebina de 62 pacientes parasitados con *Taenia*." 13 (1), 77-79. [English summary p. 79.]
- d. PERALTA DÍAZ, E. & MAZZOTTI, L., 1953.—"La atebina en el tratamiento de las parasitosis por *Hymenolepis nana*." 13 (2), 121-125. [English summary p. 125.]

(404a) In five horses shown by skin biopsy to be infected with *Onchocerca* hetrazan had no effect on the microfilariae and caused no allergic reactions, except for a slight papular oedema in one horse which was much more heavily infected than the other four. In the one animal which was autopsied two months after treatment, normal female *O. cervicalis* were present in the cervical ligament. P.M.B.

(404b) In the Mexican State of Chiapas, 33 out of 152 onchocerca nodules excised from 108 patients who had received hetrazan treatment contained both dead and living worms and 63 contained only dead specimens. Some dead worms were present in 69% of the nodules from those patients treated four months prior to the removal of the nodules, compared with 63.2% and 60% respectively from those treated two months and ten days before excision. Corresponding figures for nodules containing dead worms alone were 60.6%, 46.9% and 28.6%. The author previously reported that 75% of the nodules excised from patients a year after three courses of hetrazan contained some dead specimens. P.M.B.

(404c) Fifty-four persons with *Taenia saginata*, eight with *T. solium* and five with both species were treated with atebirin. In 55 individuals the parasite was expelled; the scolex was found in 50. In five the treatment was unsuccessful. Two of the cases could not be followed up. Vomiting occurred in 11 and there was a yellow colouring of the skin in one. P.M.B.

(404d) Atebrin in the form of quinacrine was effective in only five out of 18 children with *Hymenolepis nana*; in 12 cases two or three repetitions of the treatment failed. P.M.B.

405—Revista Kuba de Medicina Tropical y Parasitología.

- a. BASNUEVO, J. G., COWLEY CHÁVEZ, O., BLANCO RABASSA, E., ACHKAR, R. & SOLER DELGADO, F., 1953.—"La mezcla hexilresorcinol, acacia, kaolin e hidróxido de aluminio (santokin), en el tratamiento de la tricocefaliasis." 9 (1/6), 3-12. [English summary p. 8.]
- b. KOURÍ, P., 1953.—"Tratamiento de la trichuriasis o tricocefaliasis. Parasitismo por *Trichuris trichiura* o *Tricocephalus dispar*." 9 (1/6), 13-17.

(405a) [This paper also appears in *Rev. cubana Pediat.*, 25, 288-303. For abstract see No. 401a above.]

(405b) Various methods of treatment for trichuriasis are summarized, the most successful being with enemas of santokin, as evolved by Basnuevo *et al.* In cases of mixed infections with *Trichuris* and certain other helminths, particularly *Ascaris* and hookworm, the enemas should be combined with oral administration of capsules (or "perlas" for children) of santokin which contain hexylresorcinol and chenopodium oil, or of Hydroxylen which also contains tetrachlorethylene. In severe cases the enemas are given first, but in milder cases oral treatment followed by enemas is recommended. P.M.B.

406—Revista de Sanidad e Higiene Pública. Madrid.

- a. JUÁREZ, E., 1953.—“Consideraciones sobre cinco epidemias de triquinosis.” 27 (1/2), 88-99.

(406a) Brief descriptions are given of five epidemics of trichinosis which occurred in various parts of the Spanish province of Cáceres, including the capital, in the years 1944 (62 cases), 1945 (42 cases), 1947 (38 cases), 1948 (24 cases) and 1953 (46 cases). P.M.B.

407—Science. Lancaster, Pa.

- a. DOBROVOLNY, C. G. & HASKINS, W. T., 1953.—“Effects of soils and sunlight on dilute concentrations of sodium pentachlorophenate.” 117 (3045), 501-502.
 b. GOMBERG, H. J. & GOULD, S. E., 1953.—“Effect of irradiation with cobalt-60 on trichina larvae.” 118 (3055), 75-77.
 c. TALMAGE, R. V., NACHIMSON, H., KRAINTZ, L. & GREEN, J. A., 1953.—“The effect of phenothiazine N.F. (green) on the uptake of I^{131} by the rat thyroid.” 118 (3059), 191-192.

(407a) Laboratory tests corroborate field observations that various earthy materials reduce the concentration of the molluscicide sodium pentachlorophenate. The greater the depth of mud in proportion to that of the water, the more rapid the reduction. The chemical was probably adsorbed by the fine particles of soil. A similar effect was also produced by direct sunlight. A clear aqueous solution containing 10 p.p.m. of sodium pentachlorophenate retained only 1 p.p.m. after an eight-hour exposure and was only 0% to 20% effective against *Australorbis glabratus* in 24 hours. In the field, the effects can be minimized by not stirring the mud during treatment. While direct sunlight is a major factor in shallow, open waters, it is less important than mud as most waters are shaded by floating vegetation. R.T.L.

(407b) Details are given of experiments in which trichinous rat muscle and isolated *Trichinella* larvae were exposed to irradiation with cobalt-60. The dose necessary to cause sterilization of *Trichinella* while still encysted in muscle was 15,000 r. To produce complete sterilization of isolated larvae *in vitro*, about 12,800 r were required. Irradiation of trichinous muscle by 18,000 r reduced maturation of the *Trichinella* to less than 1%. Complete kill of isolated larvae required 750,000 r when motility was the test, but when the larvae were examined two hours after completion of irradiation, the lethal dose necessary proved to be 700,000 r, and 400,000 r if examined 20 hours after irradiation. Previous experiments indicate that the killing dose for irradiation of trichinous muscle would be higher than for irradiation *in vitro*. The possibility that irradiation of pork may be an effective method of controlling trichinellosis is now under investigation. R.T.L.

(407c) Phenothiazine produces an almost immediate and marked effect on the thyroid uptake of iodine, I^{131} , when administered to rats. In view of the widespread use of this drug as an anthelmintic this effect should be investigated to ascertain if other animals, especially livestock, react similarly. R.T.L.

408—Sitzungsberichte der Österreichischen Akademie der Wissenschaften.

- a. BÖHM, L. K. & SUPPERER, R., 1953.—“Beobachtungen über eine neue Filarie (Nematoda) *Wehrdikmansia rugosicauda* Böhm & Supperer 1953, aus dem subkutanen Bindegewebe des Rehes.” Abt. I, 162 (1/2), 95-104.

(408a) A new filaria named *Wehrdikmansia rugosicauda* n.sp. is described and figured from the subcutaneous connective tissue of *Capreolus capreolus* in Austria. It is differentiated from *W. cervipedis*, the other species of this genus, by its small size, the male measuring only 2.2 cm.-2.5 cm. and the female 3.5 cm.-4.5 cm., by the presence of caudal alae in the male and by the caudal papillae of which there is only a single pair. R.T.L.

409—Sovetskaya Meditsina.

- a. LEBEDEV, A. P., 1953.—[Unusual case of echinococcosis.] 17 (6), 34–36. [In Russian.]
- b. MARKARYAN, A. M. & MIKAELYAN, S. A., 1953.—[Echinococcosis of the heart.] 17 (8), 37. [In Russian.]
- c. KAMALOV, S. Y., 1953.—[Echinococcosis of the lung and right kidney.] 17 (8), 38. [In Russian.]
- d. BAGIROV, M. A., 1953.—[Echinococcosis of the endoderm.] 17 (8), 38. [In Russian.]

410—Tijdschrift voor Diergeneeskunde.

- a. SYBESMA, R. P., 1953.—“Over longworm.” 78 (11), 483–489. [English, French & German summaries p. 489.]
- b. GROOTENHUIS, G., 1953.—“Klinische les. Wormziekten-bestrijding bij het paard.” 78 (15), 630–636. [English, French & German summaries pp. 634–635.]
- c. SCHOON, J. G., 1953.—“De keuring en herkeuring van een rund, lijdende aan cysticercose.” 78 (15), 637–642. [English, French & German summaries p. 642.]
- d. OOMS, J. J., LUXWOLDA, W., CAPELLE, T. J. VAN & SCHOON, J. G., 1953.—“Herkeuring van een rund lijdende aan cysticercose.” 78 (18), 805–811.

(410a) Sybesma reports successful treatment of lungworm disease in calves with “Robasfer I” a roborant manufactured by Aesculaap (Eindhoven) and containing iron, copper and arsenic. He gives brief reports of its use in nine small herds and in all but one results were satisfactory (judged apparently by disappearance of symptoms). The dose was 20 c.c. injected subcutaneously, repeated once after an interval varying from two to four weeks. Sybesma stresses that treatment must be accompanied by strict stall and pasture hygiene. A.E.F.

(410b) Grootenhuis points out that helminth infections in horses—particularly ascariasis and strongylosis—are responsible in the Netherlands for an annual loss amounting to millions of guilders. Preventive measures should include stall hygiene (especially for in-foal mares), rotational grazing, spreading and drying of manure, and drainage of pastures. The principal drugs for treating these infections are listed, phenothiazine (10 gm. per day for 10 days) against strongyles and carbon disulphide (5 c.c. per kg. body-weight) against *Ascaris* are particularly recommended. A.E.F.

(410c) Dutch meat inspection law provides that the flesh of cattle found to be infected with cysticerci may be passed by a veterinary inspector on condition that it be sterilized or kept for 10 days at -10°C . Under certain circumstances the owner may claim a second examination of the carcass by another veterinary officer. Schoon discusses the pros and cons of sterilization and freezing and decides in favour of sterilizing since in South Holland it is very difficult to sell frozen meat. He reports a case where two independent veterinary opinions recommended, at a reinspection, sterilizing and freezing respectively and considers that the time is ripe for a solution of this “very delicate and troublesome question” of reinspection. A.E.F.

(410d) The views put forward by Schoon [see preceding abstract] are discussed by three of his veterinary colleagues. The relative advantages of sterilizing and freezing are assessed and views expressed on the vexed question of reinspection. Schoon briefly replies. A.E.F.

411—Tijdschrift over Plantenziekten.

- a. HIJNER, J. A., OOSTENBRINK, M. & OUDEN, H. DEN, 1953.—“Morfologische verschillen tussen de belangrijkste *Heterodera*-soorten in Nederland.” 59 (6), 245–251. [English & French summaries pp. 249–251.]
- b. SCHREVEN, D. A. VAN, 1953.—“Een apparaat voor het onderzoek van aardappelknollen op de aanwezigheid van cysten van aaltjes.” 59 (6), 251–253. [English summary p. 253.]

(411a) The six important species of *Heterodera* in the Netherlands can be separated on the basis of cyst shape. These differences which are illustrated by a series of photographs are more difficult to describe than to observe. The length of the larval tail, i.e. the clear position of the tail from the tip to the body cavity, is an additional aid. A key for practical work is appended. R.T.L.

(411b) Samples of potatoes can be examined for eelworm cysts by an apparatus of the following construction. A square, coarse sieve (50 cm. × 50 cm. × 25 cm. with a mesh of 3 mm.) is placed over a large funnel supported by staging and contains the tubers. Two sieves with meshes of 1 mm. and 0.25 mm. respectively stand on the frame below the funnel. A strong, conical jet of water is sprayed on the tubers. Cysts and particles pass through the top sieve, through the funnel and through the second sieve of 1 mm. mesh but are retained by the third sieve of 0.25 mm. The water passing through the three sieves is drained off through a gutter. Cysts, even when few in number, can be separated from tuber samples weighing 60 kg. to 90 kg.

R.T.L.

412—Transactions of the American Microscopical Society.

- a. HALLBERG, C. W., 1953.—“*Diectophyma renale* (Goeze, 1782) a study of the migration routes to the kidneys of mammals and resultant pathology.” 72 (4), 351–363.
- b. WAGNER, E. D., 1953.—“A new species of *Proteocephalus* Weinland, 1858, (Cestoda), with notes on its life history.” 72 (4), 364–369.
- c. ULMER, M. J., 1953.—“Studies on the nervous system of *Postharmostomum helici* (Leidy, 1847) Robinson 1949, (Trematoda: Brachylaimatidae).” 72 (4), 370–374.
- d. GUSTAFSON, P. V., 1953.—“An instrument for microscopic examination of objects in closed vessels.” 72 (4), 375–376.
- e. HOFFMAN, G. L., 1953.—“*Streptomyces leidnematis* n.sp., growing on two species of nematodes of the cockroach.” 72 (4), 376–378.

(412a) The means and route by which the infective larvae of *Diectophyme renale* reach their final destination in the host body has been studied for the first time, both in naturally and experimentally infected animals. The evidence obtained supports the theory that the migration from the duodenum to the kidney occurs through the gut wall at a point midway between the anterior apex and the hilus of the kidney. The pathological changes in the tissues are described and indicate lytic action. In multiple infections, all worms are of about the same size and age. Attempts to infect already infected animals failed. This immunity is probably established shortly after the entry of the first parasite.

R.T.L.

(412b) In *Proteocephalus tumidocollus* n.sp. from *Salmo gairdnerii* and *Salvelinus fontinalis*, the strobila has an average length of 86 mm. and consists of about 150 proglottides, the majority of which are gravid and there is an apical fifth sucker (which is non-functional) which is lacking in *P. salmonidicola* and *P. primaverus*. Various measurements differ from those found in *P. parallaeticus* and *P. arcticus*. Laboratory-reared *Cyclops vernalis* and *Eucyclops agilis* were successfully infected and when these were fed to young rainbow trout, *P. tumidocollus* attained maturity in 106 days.

R.T.L.

(412c) The nervous system of *Postharmostomum helici* is described and figured. Sections were made of young adults obtained from experimentally infected mice, and treated by a modified gold chloride impregnation technique. There is a pair of prominent cerebral ganglia connected by a dorsal commissure. There is an anterior transverse commissure similar in position to that described by Zailer in *Pneumonoeces variegatus*, and transverse pharyngeal commissures. There are two posteriorly directed nerve trunks connected by a series of commissures from which there are extensive ramifications in the genital region.

R.T.L.

(412d) Gustafson illustrates an instrument, called the “infrascope”, designed by Jordan Lefler, which is briefly described as consisting of “a platform, set upon the microscope stage, holding two opposed 90° reflecting prisms”. With it, details of moulting cuticle, maturation or movement of nematodes could be adequately evaluated.

R.T.L.

(412e) A filamentous growth extending from the cuticle of specimens of *Leidynema appendiculata* and *Hammerschmidtella diesingi* found in the intestine of *Periplaneta americana* is figured, described and named *Streptomyces leidnematis* n.sp. The organism appears to use the nematodes solely for anchorage as there was no evidence of growth through the cuticle.

R.T.L.

413—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. AMBERSON, J. M. & SCHWARZ, E., 1953.—“On African schistosomiasis.” 47 (6), 451–502.
- b. HUEHNS, E. R., 1953.—“Filariasis in Mauritius.” 47 (6), 549–555.
- c. McFADZEAN, J. A., 1953.—“The effect of adrenocorticotrophic hormone on elephantiasis of the lower limb.” 47 (6), 561–563.
- d. COWPER, S. G., 1953.—“Schistosomiasis in Mauritius.” 47 (6), 564–579.
- e. CRUZ, Jr., O. & DIAS, E., 1953.—“*Bacillus pinottii* sp.n.” [Correspondence.] 47 (6), 581–582.

(413a) This contribution to our knowledge of African schistosomiasis is chiefly devoted to a revision of the classification of the molluscan vectors in Africa. Many names have been given to the relatively few species concerned and are not of specific or even subspecific value. Distribution maps, locality records and photographs are given of all the known and possible vectors. *Schistosoma intercalatum* is entirely restricted to man; the single record of its occurrence in sheep is of doubtful validity. Eggs from an infection acquired in the town of Mozambique agree very closely with those figured by Harley as *Bilharzia capensis* and may be a distinct strain, *S. haematobium capense*. The variations and overlapping of the egg measurements lead the authors to recognize five subspecies of *S. haematobium*, viz., *S. h. haematobium*, *S. h. capense*, *S. h. intercalatum*, *S. h. matthei* and *S. h. bovis*. The taxonomic status of the *haematobium* group in West, Central, East and South Africa is uncertain. The remarkable distribution of schistosomiasis in South Africa is identical with that of *Bulinus africanus*. The infection is absent from the south-western part of Cape Province where *B. truncatus* occurs but *B. africanus* is absent. In the northern area (as far as 11° N.) *S. h. haematobium* and *S. h. bovis* are both carried by *B. truncatus* and will not infect *B. africanus*. Elsewhere, all forms of the *S. haematobium* group are carried by *B. truncatus* and will not infect *B. africanus*. In an addendum it is reported that in a urine sample received from Boajibu in Sierra Leone, the eggs agreed completely with those of *S. h. haematobium* of Egyptian origin, although, so far as is known, the intermediate host at Boajibu is *B. africanus*, not *B. truncatus* as in Egypt. R.T.L.

(413b) In Mauritius, the only microfilaria so far known in man is that of *Wuchereria bancrofti* which is found all over the island; elephantiasis is well known, but clinically the infection is mild. Nocturnal periodicity of the microfilariae has been confirmed. The known or possible vectors in Mauritius are *Culex fatigans*, *Anopheles gambiae* and *A. maculipalpis*. R.T.L.

(413c) Three cases of elephantiasis of the lower limb investigated in the Gambia were treated with ACTH without significant effect. R.T.L.

(413d) Cowper has made a general survey of the extent and distribution of schistosomiasis haematobia in Mauritius and has confirmed experimentally that *Bulinus forskali* is an efficient vector, but he has so far failed to find natural infections. Its distribution is correlated with that of *S. haematobium*. In Mauritius, schistosomiasis is widespread throughout large areas, particularly in the Port Louis area, in the northern third of the island and in a belt from Grand Port to Savanne, the southern provinces. Cercarial antigen for screening and diagnosis was obtained from Rhodesia but proved unreliable. R.T.L.

(413e) A bacillus, isolated from *Australorbis glabratus*, is now figured and named *Bacillus pinottii* n.sp. It is lethal to several species of molluscs and has been tried with good results on intermediate hosts of *Schistosoma mansoni* in Brazil. R.T.L.

414—Tropical Medicine and Hygiene News.

- a. HASKINS, W. T. & DOBROVOLNY, C. G., 1953.—“An apparatus for the application of solutions of molluscicides to streams by the drip method.” 2 (5), 7–8.

(414a) A drip apparatus which requires little supervision and gives a constant and reproducible rate of flow of solutions of molluscicides is illustrated. It consists of a metal or wooden barrel of 100–200 litre capacity, with a copper tube 2 mm. or 3 mm. in diameter

inserted through the airtight top as a vent pipe, and with a faucet or similar valve (or a piece of the copper tubing used for the vent pipe) inserted in the side of the barrel 3 cm. to 5 cm. above the bottom. The rate of flow depends on the distance between the bottom of the vent pipe and the level of the outlet faucet and is regulated either by varying this distance or by varying the size of the opening of the faucet valve. R.T.L.

415—Tuatara. Victoria University College, Wellington, New Zealand.

- a. ANON., 1953.—"The frog, *Hyla aurea*, as a source of animal parasites." 5 (1), 12-21.

(415a) *Hyla aurea* when introduced from Australia into New Zealand brought with it two trematodes, *Diplodiscus megalochrus* and *Gorgodera australiensis*, and one nematode, *Rhabdias hylae*. R.T.L.

416—Ugeskrift for Landmaend.

- a. BOVIEN, P. & LINDHARDT, K., 1953.—"Angreb af *Staengelal* (*Ditylenchus dipsaci*) paa Raps." 98, 271-273.
b. STAPEL, C., 1953.—"Angreb af *Staengelal* *Tylenchus dipsaci* paa Rug." 98, 274-275.

(416a) Bovien & Lindhardt have found attacks by *Ditylenchus dipsaci* in rape in Denmark. Symptoms of attacked plants are described and there is a discussion about which strains of nematodes may attack this plant. It is pointed out that this question cannot be answered now. S.B.

(416b) An attack by stem nematode in rye is described. It is very seldom found attacking this plant in Denmark. In 1950 alsike clover had been grown in the same field, in 1951 oats and barley with some alsike clover, in 1952 rye with plenty of alsike clover and in 1953 rye which was destroyed by the nematode. There is a possibility that the nematode has been able to propagate in alsike clover—as has been found in German investigations—and then to attack rye. S.B.

417—University of California Publications in Zoology.

- a. HADERLIE, E. C., 1953.—"Parasites of the fresh-water fishes of northern California." 57 (5), 393-440.
b. SHER, S. A. & ALLEN, M. W., 1953.—"Revision of the genus *Pratylenchus* (Nematoda: Tylenchidae)." 57 (6), 441-470.
c. READ, C. P. & MILLEMAN, R. E., 1953.—"Helminth parasites in kangaroo rats." 59 (3), 61-80.

(417a) Of the worms collected from over 2,000 fresh-water fishes, belonging to 36 species and 11 families, 27 were trematodes, 17 cestodes, 10 nematodes, 3 acanthocephalans and 3 leeches. Thirty-five of these were known forms, 20 were unidentified species and seven are named, described and figured for the first time, viz., *Plagioporus macruterinus* n.sp. and *Proteocephalus cobraeformis* n.sp. from *Ptychocheilus grandis*, *Proteocephalus microcephalus* n.sp. from *Micropterus dolomieu*, *Triganodistomum crassicurum* n.sp. from *Catostomus rimiculus*, *Diplostomulum ictaluri* n.sp. from *Ictalurus catus*, and *Tetracotyle tahoensis* n.sp. and *Glaridacris oligorchis* n.sp. from *Catostomus tahoensis*. The oecology of parasites of fresh-water fishes of California is discussed and the species encountered during the survey are listed in systematic order and under their hosts. Many of the known and the unidentified species are also described. R.T.L.

(417b) The history, morphology, biology and systematics of *Pratylenchus* are reviewed. A key is provided for ten species including *P. minyus* n.sp., *P. thornei* n.sp. and *P. goodeyi* n.sp. *P. minyus* from the soil around various plants is similar to *P. scribneri* but the vulva is more posterior. *P. thornei* causes severe damage to roots of seedling wheat plants in Utah. It is easily recognized by the peculiar lateral sclerotization of the lip region and round blunt tail. *P. goodeyi* came from Kew Gardens and was originally identified as *P. musicola*. The vulva

is more anterior than in *P. vulmus*. *P. musicola* and *P. mahogani* are tentatively considered to be synonyms of *P. coffeae*. *P. zeae* Steiner, 1950 is a *nomen nudum*. This species should be cited as *P. zeae* Graham, 1951. *P. sacchari* Soltwedel and *Dolichodorus heterocercus* Kreis are *species inquirendae*; both probably belong to *Pratylenchus*. R.T.L.

(417c) Of six helminth species collected in California from heteromyid rodents of the genus *Dipodomys*, two are new, viz., (i) *Mastophorus dipodomis* n.sp. which differs from *M. tetradon* in the absence of teeth on the median lobes of the pseudolabia, the lateral compression of the stoma and the long male cauda; the type host is *D. panamintinus* but it also occurs in *D. merriami*, *Perognathus baileyi* and *P. longimembris*; a key is given to the species of *Mastophorus*, the taxonomy of which is unsatisfactory; (ii) *Trypanoxyuris deserti* n.sp., from the type host *D. panamintinus* and also from *D. merriami* and *D. morroensis*, is larger than *T. sciuri* from squirrels and those species which occur in New World monkeys; its generic position is difficult to assess but it shows definite affinities with *Citellina* although the eggs are flattened on one side and have no polar filaments; there is no accessory piece, thus differing from *Syphacia* and there is no vulvar appendage which distinguishes it from *Wellcomeia*. Of the four known species, *Rictularia dipodomis* is redescribed. A *Gongylonema* is tentatively assigned to *G. neoplasticum* and the occurrence of *Catenotaenia* sp. in *D. panamintinus* and *D. merriami*, and of *Oochoristica* sp. in *D. merriami* is briefly mentioned. R.T.L.

418—Vestnik Khirurgii Imeni Grekova. Leningrad.

- a. GAMOV, V. S., 1953.—[Surgical treatment of pulmonary echinococcosis.] 73 (3), 34-40. [In Russian.]

419—Vestnik Oftalmologii.

- a. TSINTSADZE, E. D., 1953.—[Filariasis of the upper eyelid in man.] 32 (3), 28-29. [In Russian.]

420—Veterinaria. Sarajevo.

- a. ŠENK, O., 1953.—“*Raphidascaris acus*-Bloch enteroparazit Salmonida rijeke Zujevine. (Preliminarna zapažanja).” 2 (2), 311-316. [English summary p. 311.]
- b. BIBIĆ, C., 1953.—“Prilog upoznavanju raširenosti trihinella u suhom svinjskom mesu.” 2 (2), 317-326. [English summary p. 317.]
- c. BANIĆ, M., VUKAŠINOVIĆ, N. & KENDEREŠKI, S., 1953.—“Jedan slučaj trihinoze u Beogradu.” 2 (2), 327-328. [English summary p. 327.]
- d. VUKOVIĆ, V., 1953.—“Prilog poznavanju gongylonemoze goveda.” 2 (2), 350-351. [English summary p. 350.]
- e. BOKO, F., 1953.—“Hidatidna kaheksija goveda izazvana monoinfestacijom slezene.” 2 (2), 397-400. [English summary p. 397.]

(420a) *Salmo trutta fario* in the Zujevina river were found infected with *Raphidascaris acus*. Adults occurred in the gut and encysted larvae in liver, blind gut and mesentery. Minute free larvae were present in the body-cavity. Worms were found only in fish over two years old. R.T.L.

(420b) Examination by the digestion method of cured pork which had caused trichineliasis in nine persons in Yugoslavia in 1952 gave the following number of larvae per 100 gm.: in loin chops 12,500, in bacon muscle 4,200, in ham muscle 2,400 and in pure bacon 5. No infection was produced when white rats were fed with 1,000 larvae from these various tissues. R.T.L.

(420c) Trichinelliasis occurred in a family of three persons in Belgrade. The infection was acquired by eating pork from northern Serbia. R.T.L.

(420d) *Gongylonema* was present in 98.8% of 538 cattle from eastern and central Bosnia, western Serbia and eastern Montenegro which were slaughtered in Sarajevo. The largest number of parasites found in the gullet mucosa was 68. R.T.L.

421—Veterinariya.

- a. PRIGOR, M. I., 1953.—[Prophylaxis and treatment of dictyocauliasis in ruminants.] 30 (4), 16–20. [In Russian.]
- b. ORLOVA, K. V., 1953.—[Paramphistomiasis in young cattle.] 30 (4), 20–22. [In Russian.]
- c. ROMASHCHENKO, E. I., 1953.—[Avitellinosis in sheep.] 30 (4), 22–25. [In Russian.]
- d. KRYUKOVA, K. A., 1953.—[Synthetic arecoline as an anthelmintic against tapeworms in dogs.] 30 (4), 25–26. [In Russian.]
- e. KALININ, I. V., 1953.—[New method of treatment of *Thelazia* in cattle.] [Abstract.] 30 (4), 26. [In Russian.]
- f. ANDREEV, A. I., 1953.—[Fascioliasis in pigs and its treatment.] [Abstract.] 30 (4), 26–27. [In Russian.]
- g. TROSHCHENKO, A. E., 1953.—[Treatment of thelaziasis in cattle.] [Abstract.] 30 (4), 27. [In Russian.]
- h. KHOLOSHCHANOV, V. A., 1953.—[Changes in the blood of lambs experimentally infected with *Haemonchus contortus*.] [Abstract.] 30 (4), 27. [In Russian.]
- i. VASILEVSKI, M. L., 1953.—[The influence of the repeated doses of phenothiazine on the horse.] [Abstract.] 30 (4), 27. [In Russian.]
- j. TAREEVA, A. I., 1953.—[Aminoacrikhin as an anthelmintic.] [Abstract.] 30 (4), 27. [In Russian.]
- k. TAREEVA, A. I., 1953.—[Anthelmintic action of 'Egremint'.] [Abstract.] 30 (4), 27–28. [In Russian.]
- l. BABICHEV, G. A., 1953.—[Treatment of horses affected with cutaneous habronemiasis.] [Abstract.] 30 (4), 28. [In Russian.]
- m. VASILEV, A. A., 1953.—[Treatment of ascariasis in pigs.] [Abstract.] 30 (4), 28. [In Russian.]
- n. YARTSEVA, A. S., 1953.—[Amidostomiasis in geese.] [Abstract.] 30 (4), 28. [In Russian.]
- o. GADZHIEV, K. S., 1953.—[Epizootology of neoscariasis and its treatment.] [Abstract.] 30 (4), 28. [In Russian.]
- p. LISENKO, A. A., 1953.—[Administration of phenothiazine in mass treatment.] [Abstract.] 30 (4), 28–29. [In Russian.]
- q. NIKOLAEVSKI, L. D., 1953.—[*Paramphistomum cervi* in reindeer.] [Abstract.] 30 (4), 29. [In Russian.]
- r. MAGDO, P. S., 1953.—[The treatment of thelaziasis in cattle with sulphanilamides.] [Abstract.] 30 (4), 29. [In Russian.]
- s. YAROSH, L. D., 1953.—[Notes on treatment and prevention of dictyocauliasis in calves.] [Abstract.] 30 (4), 29. [In Russian.]

(421a) According to Prigor, the intratracheal injection of iodine solution is effective against dictyocauliasis in ruminants, if applied three times at intervals of 10–12 days. He observed dictyocauliasis in cattle of all ages but clinical symptoms only in young animals and in adults up to three years of age. In sheep and goats clinical dictyocauliasis was observed among animals of all ages. Clinical dictyocauliasis occurred among cattle throughout the year but was common among calves in August and September, in adult cattle in February and March and among goats and sheep in October and November. In his opinion the best time for prophylactic treatment is during the summer (July and August). C.R.

(421b) Orlova describes an outbreak of paramphistomiasis with high mortality in young cattle. In one case the number of immature flukes in a section of the duodenum (29 cm.) was 10,000 specimens. She describes the clinical picture. Treatment with Fowler's solution, copper sulphate and hexachlorethane was ineffective. C.R.

(421c) Romashchenko reports the occurrence of *Avitellina centripunctata* in yearling sheep. Treatment of affected sheep with copper sulphate, copper sulphate and arsenic, kamala and male fern extract was not effective. C.R.

(421d) Kryukova used synthetic arecoline in dogs, experimentally infected with *Taenia hydatigena*, 47–51 days after infection. Food was withheld for 28 hours before treatment and for two hours after. Arecoline was given in doses of 0.002–0.003 gm. per kg. body-weight with good results. In cases where not all the tapeworms were expelled, the treatment was repeated one to two days later. C.R.

(421e) Among 139 cattle affected with thelaziasis, 47 had conjunctivitis and keratitis and six were completely blind. Kalinin treated 87 cattle with phenothiazine powder and also with emulsion of phenothiazine. The treatment was effective if given at an early stage but in old, chronic cases was useless. C.R.

(421f) Andreev dosed pigs infected with *Fasciola hepatica* with carbon tetrachloride (dose not given) and with hexachlorethane-fascioline. The best results were obtained with hexachlorethane-fascioline at a dose of 0.2 gm. per kg. body-weight. The drug was given after 12 hours' fasting. After a single dose, 70%–75% of the pigs were free from infection and after a second treatment, given two to four weeks later, 100% were cured. C.R.

(421g) Troshchenko obtained good results against thelaziasis in cattle with 0.5% solution of carbolic acid. C.R.

(421h) Kholoshchanov found that when five lambs and one kid were infected with 250–5,000 larvae of *Haemonchus contortus*, they showed haemolytic anaemia in the first month with the following characteristics: reduction of the percentage of haemoglobin, erythropenia, poikilocytosis, anicytosis and accelerated sedimentation of erythrocytes. There was also slight leucopenia, a reduction of segmented neutrophils and an increased number of lymphocytes. The eosinophils reached 25%. C.R.

(421i) Vasilevski kept under observation five horses treated with phenothiazine. One received nine doses in a year, the second eleven doses in 13 months, the third eleven doses in 15 months, the fourth twelve doses in 16 months and the fifth fourteen doses in 22 months. He found that the behaviour of the horses was normal, the condition was improved and the blood was normal except for an increase in lactic acid and bilirubin. In four horses, haemosiderosis of the endothelial cells of the capillaries was noticed. C.R.

(421j) Tareeva tried aminoacridine in cats infected with tapeworms and *Toxocara*. She found the drug most effective against tapeworms when given in doses of 200 mg. per kg. body-weight. It was not effective against *Toxocara*. The lethal dose for cats was found to be 1.35 gm. per kg. body-weight. C.R.

(421k) Tareeva used Egremint in 24 cats infected with *Toxocara*. The drug was given in gelatin capsules. She found that the most effective dose was 300 mg. per kg. body-weight which gave an efficacy of 75%. The toxicity of the drug was low. C.R.

(421l) Babichev treated 15 horses affected with cutaneous habronemiasis with creolin, iodoform, naphthalen (1:10) and 5% streptocid ointment without results. The treatment with intravenous injection of 0.2%–0.6% solution of tartar emetic produced healing of the sores in three to eight days. Better results were obtained with the injection of 0.4 gm.–0.6 gm. of tartar emetic in 60 ml.–100 ml. of distilled water. C.R.

(421m) On a farm where pigs were heavily infected with *Ascaris*, Vasilev introduced the following measures: in the sties the faeces and manure were collected three times daily; floors and parts of the walls were washed with boiling water every ten days, this being followed by spreading anhydrous lime on the wet floors; the food and water troughs were washed with boiling water once in ten days. The animals were first treated 15 days after weaning and ten days later treatment was repeated with sodium fluoride in doses of 0.1 gm. per kg. body-weight. The pigs were kept on grazing which was changed every nine days. All these measures were effective: a year later 1,410 young pigs (three to eight months old) were examined and were all found free from infection. C.R.

(421n) Yartseva finds that the longevity of *Amidostomum anseris* is 12–15 months. The larvae are found in summer in both sunny and shady places and under such conditions they can survive 93 days. The larvae die in 15 days in temperatures of $-27^{\circ}\text{C}.$ to $-2.5^{\circ}\text{C}.$ Eggs in these low temperatures are destroyed in 17–18 days. In view of this the author recommends treatment of geese in winter. C.R.

(421o) According to Gadzhiev, *Neoascaris vitulorum* is found in calves and buffalo calves of 17 days to three months of age. He dosed the animals with santonin (25 calves),

hexachlorethane (29 calves), tartar emetic (8 calves) and phenothiazine (10 calves). The best results were obtained with santonin (0.2 gm. per kg. body-weight) and hexachlorethane (0.2 gm. per kg. body-weight). C.R.

(421p) Lisenko recommends the preparation of 10% solution of phenothiazine in 3%–5% of flour with water. When well mixed it forms an emulsion for some time, but requires to be shaken after 60–90 minutes. C.R.

(421q) Nikolaevski reports the occurrence of *Paramphistomum cervi* in reindeer. C.R.

(421r) In the treatment of thelaziasis, Magdo used a 1% solution of norsulphasone, followed by 10–15 drops of 5% albucid three times daily. In animals with lesions in the cornea he used albucid powder every three hours on the first day, 10–15 drops of 30% solution of albucid every three hours on the second day and 30% albucid ointment for the night. As a prophylactic measure in all cattle, the eyes were rinsed with a 1% solution of norsulphasone and the skin in the region of the median corner of the eye was covered with liniment obtained from hemp by dry distillation. C.R.

(421s) Yarosh obtained good results against *Dictyocaulus* in calves by the administration of 1:14 phenothiazine-salt mixture for five days followed by a five days' interval; this treatment was followed up with small doses of phenothiazine. In his opinion emaciated calves should be treated with iodine solution only after general improvement in their condition and when there is no bronchopneumonia. C.R.

422—Veterinary Medicine.

- a. EVELETH, D. F., GOLDSBY, A. I., BOLIN, F. M. & BOLIN, D. W., 1953.—“Effect of parasitism on conversion of carotene into vitamin A by sheep: a preliminary report.” 43 (11), 441–442.
- b. WHITNEY, L. F. & WHITNEY, G. D., 1953.—“Contrasting tetrachlorethylene and n-butyl chloride as canine anthelmintics.” 48 (12), 495–499.

(422a) Preliminary results are reported of trials on the conversion of carotene into vitamin A by two-year-old sheep maintained on carotene low ration since weaning and infected experimentally with filariform larvae, mostly of *Trichostrongylus* sp. In a non-parasitized control, the initial vitamin A content of the liver was higher than in three parasitized sheep and after drenching with carotene its vitamin A level rose to 14.4 I.U. per gramme which was over twice that of any of the parasitized sheep. It is concluded that parasites in the abomasum and small intestine of sheep interfere with the conversion of carotene into vitamin A. R.T.L.

(422b) In Connecticut, thousands of puppies die annually from the direct or indirect effects of intestinal parasites. At the Whitney Veterinary Clinic, 40% of those under three weeks old, and 50% of those from four to eleven weeks old were infected with roundworms. The safe dose of tetrachlorethylene was 0.1 c.c. per 12 oz. body-weight even for puppies one week old when the digestive tract was empty. Milk, by dissolving this drug, was extremely toxic. n-butyl chloride was also effective and non-toxic but was more liable to induce emesis. The usual dose of 1.5 c.c. per 10 lb. body-weight can be given in four split doses, one hour apart, without producing emesis. R.T.L.

423—Veterinary Record.

- a. MANLEY, F. H. & BARAZANJI, A. S., 1953.—“Canine filariasis in Iraq.” 65 (47), 846–847.
- b. ANON., 1953.—“Trichinosis in Liverpool.” 65 (47), 855.
- c. MITCHELL, K. S. & HUGHES, A. L., 1953.—“Keratitis in cattle associated with the presence of *Thelazia* species.” 69 (49), 879.
- d. HARRIES, L. G., 1953.—“Treatment of tapeworm infestation in sheep.” 65 (50), 894–895.

(423a) Microfilariae were present in the blood of 32 out of 107 dogs examined in Baghdad. The peripheral blood was usually cleared of microfilariae by intravenous injection of 6 c.c. of stibophen for eight consecutive days. R.T.L.

(423b) It is announced that 24 mild, human cases of trichinelliasis have occurred recently in Liverpool. R.T.L.

(423c) *Thelazia* sp. caused lachrymation and ulceration of the cornea which became milky and opaque and subsequently resulted in total blindness in cattle in Herefordshire. These parasites are apparently more prevalent in England than is generally recognized for 20 cattle were affected on a single farm. R.T.L.

(423d) In a sheep flock heavily infected with *Moniezia expansa* at Severn Stoke, both the ewes and the lambs were in poor general condition and there was some mortality. When the ewes were dosed with 7.5 gm. and the lambs with 3 gm. of "Dicestal" (diphenthan-70), there was rapid increase in body-weight and improvement in general condition. R.T.L.

424—Zeitschrift für Parasitenkunde.

- a. KUHLOW, F., 1953.—"Über die Entwicklung und Anatomie von *Diphyllbothrium dendriticum* Nitzsch 1824." 16 (1), 1-35.
- b. KREIS, H. A., 1953.—"Beiträge zur Kenntnis parasitischer Nematoden. XIV. Wenig bekannte parasitische Nematoden aus dem Star und die Beschreibung einer neuen Art der Gattung *Protospirura* Seurat, 1914." 16 (1), 36-50.
- c. SUPPERER, R., 1953.—"*Capillaria böhmi* spec.nov., eine neue Haarwurmart aus den Stirnhöhlen des Fuchses." 16 (1), 51-55.
- d. HEINZE, K., 1953.—"Bemerkungen zur Systematik der Gordioidea." 16 (1), 92.

(424a) Kuhlow has worked out the life-history of *Diphyllbothrium dendriticum* and he describes and figures the various developmental stages. Experimental feeding of coracidia produced fully developed proceroids in *Diaptomus gracilis*, *D. graciloides*, *D. vulgaris* and *Cyclops strenuus* (only immature forms of the last-named can be infected). Infected copepods fed to 13 species of fish showed the following to be second intermediaries: *Gasterosteus aculeatus*, *G. pungitius*, *Trutta fario*, *T. shasta* and *T. trutta*, the three *Trutta* spp. being particularly susceptible to infection. Natural infections were found in *G. aculeatus* and *T. trutta* in the Lower Elbe district. Plerocercoids in experimentally infected fish reach the infective stage after 38 days. Adult *D. dendriticum* were recovered from *Larus argentatus*, *L. canus*, *L. ridibundus* and *Sterna hirundo*, and also from dogs, cats, rats and mice, fed with plerocercoids; infection could not be produced in duck, heron, pigeon, canary, blackbird, guinea-pig or man (the author). Examination of 263 aquatic birds representing 13 species showed natural infection only in 5.2% of *Larus ridibundus*. Development in the final host is very rapid: eggs were found in the faeces six days after infection in gulls and seven to ten days after infection in mammals. The strobila stage of *D. dendriticum* is fully described and figured. A.E.F.

(424b) Kreis describes and figures *Capillaria ovopunctata* and *Porrocaecum ensicaudatum* from a 27-day-old starling which started to ail within a week of hatching. Infection is considered to have been caused by eating earthworms which acted as transport hosts. He also describes *Protospirura bestiarum* n.sp. from the faeces of *Martes martes*. The differences between the new species and *P. muris* and *P. numidica* are set out in a table. A.E.F.

(424c) Supperer describes *Capillaria böhmi* n.sp. from the frontal sinuses of the fox and silver fox. The new species is closest to *C. aërophila* but can be distinguished by the ratio of length of oesophagus to total body length, by the number of oesophageal cells and by the indentations on the egg surface. The measurements of the two species are compared in a table. A.E.F.

(424d) Heinze proposes *Pantachordodes* n.g. for *Neochordodes* Heinze, 1952 [see Helm. Abs., 21, No. 158a], preoccupied by *Neochordodes* Carvalho. He also points out that the parasite described by Kloft in 1951 [see Helm. Abs., 20, No. 603a] as belonging to the Gordioidea should have been ascribed to the Mermithidae. A.E.F.

425—Zeitschrift für Pflanzenernährung, Düngung, Bodenkunde.

- a. SPEREITER, G., 1953.—“Die Besiedlung des ‘Dauerdüngungsversuches Dikopshof’ mit Erdnematoden und eine neue Methode zu ihrer quantitativen Isolierung.” 61 (1), 48–64.

(425a) Spereiter states that the soil and its water content are the essential factors in the qualitative distribution of free-living nematodes. She estimated their numbers by Overgaard's vertical analysis method but found it unsatisfactory and so developed a method by which samples of 50 gm. were extracted by a series of washed sieves. The time was reduced and the type of soil no longer affected the method. She also tried a method involving the enticement of nematodes by plant residues which required the active participation of the worms and only worked under certain circumstances. She found that potassium was of greatest importance for nematodes and that its deficiency was only partially compensated by stable manure which not only promoted plant growth but also affected the size of the nematode population. J.B.G.

426—Zeitschrift für Tropenmedizin und Parasitologie.

- a. KNÖNAGEL, H., 1953.—“Über einen Fall von menschlicher Infektion mit dem Katzenleberegel *Opisthorchis felineus* (Riv.).” 4 (3), 389–394. [English summary p. 394.]
 b. GREMLIZA, L., 1953.—“Bilharziose der Harnwege und Behandlungserfahrungen mit dem Schistosomiasismittel Miracil-D.” 4 (3), 394–410. [English summary pp. 409–410.]
 c. SCHADEWALDT, H., 1953.—“Die Erstbeschreibung und-abbildung von *Bilharzia haematobia* und *mansoni* durch Theodor Bilharz.” 4 (3), 410–414. [English summary p. 414.]

(426a) Knönagel describes from a Berlin hospital a case of *Opisthorchis felineus* infection in a 37-year-old male who had been in the Crimea and had had an attack of jaundice in Russia in 1942; since 1945 he had suffered at irregular intervals from stomach trouble. Treatment with the anti-malarial Resochin [chloroquine] was not successful but foudadin improved the patient's general condition and although *O. felineus* ova were still present in the duodenal juice he was able to resume work after a year. A.E.F.

(426b) After giving a general account of urinary tract lesions caused by *Schistosoma haematobium*, Gremliza describes in detail 10 cases of this infection treated with miracil-D in a dosage (for patients of 60 kg. body-weight and above) of 40 dragées (8 gm.) spread over seven successive days. In six of the patients no living ova were passed after 30 days; in the other four excretion of ova, which were elongated and resembled those of *S. intercalatum*, continued. Gremliza concludes that miracil-D, which was well tolerated, is a specific for schistosomiasis haematobia but that foudadin-emetine treatment is preferable in severe cases. A.E.F.

(426c) Schadewaldt celebrates the centenary of Bilharz's description of *Schistosoma haematobium* and *S. mansoni* by reproducing some of the original drawings together with extracts from the correspondence with Siebold. On the nomenclature problem he points out that even Weinland, who introduced the name “Schistosomum”, had later in a letter to Cobbold recognized the priority of Bilharzia. A.E.F.

427—Zeitschrift für Vergleichende Physiologie.

- a. KREUZER, L., 1953.—“Zur Kenntnis des chemischen Aufbaus der Eihülle von *Ascaris lumbricoides*. I. Mitteilung.” 35 (1/2), 13–26.

(427a) Kreuzer has made a careful and detailed examination of the four layers of the shells of fertile eggs of *Ascaris lumbricoides*. The layers were isolated by chemical treatment and examined by staining, by the use of enzymes, by conventional chemical methods and by the paper chromatographic separation of hydrolysis products. The two outer layers, which differed in solubility in alkali and acid, were found to be albuminoid in character. Each contained ten amino acids which, however, differed somewhat in the two membranes. The next layer was subjected to both acid and alkaline hydrolysis; the presence of N-acetylglucosamine and chitosan in the hydrolysates indicated that it was composed largely of chitin.

The inner membrane was extracted with acetone and was composed of an ester of a primary or secondary alcohol with partly or exclusively unsaturated fatty acids. A small amount of free unsaturated fatty acid was also present. W.P.R.

428—Zeitschrift für Zellforschung und Mikroskopische Anatomie.

- a. FREYTAG, K., 1953.—“Untersuchungen über den Aufbau der Cuticula von *Hirudo medicinalis* L.” 39 (1), 85–93.

429—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

- a. MENDHEIM, H., 1953.—“Über Anomalien, Variationsbreite und Artabgrenzung bei der Familie Echinostomatidae (Trematoda).” 159 (6/7), 477–480.

(429a) Mendheim describes and figures a number of abnormalities in the yolk glands, testes and caeca observed in individual specimens belonging to the family Echinostomatidae. P.M.B.

430—Zoologicheskii Zhurnal.

- a. FEOKTISTOV, P. I., 1953.—[Destrobilization and other forms of seasonal adaptation in *Drepanidotaenia lanceolata*.] 32 (1), 49–52. [In Russian.]
b. ZEKHNOV, M. I., 1953.—[Change with age of the helminth fauna of the grey raven (*Corvus cornix* L.).] 32 (1), 53–59. [In Russian.]

(430a) Feoktistov describes the phenomenon of destrobilization in *Drepanidotaenia lanceolata* from the small intestine of domestic geese; it takes place during the second half of October and, to a lesser extent, in early November. During the winter he observed the suppression of sexual function in mature specimens. In some there was complete cessation of the formation and maturation of eggs in the uterus and in others a considerable reduction in the number of eggs produced in gravid segments. C.R.

(430b) In order to study the parasite population in relation to age Zekhnov examined 117 adults and 101 nestlings of *Corvus cornix*. He found 100% of the adults and 79.2% of the nestlings infested and records the following species: *Plagiorchis brauni*, *Prosthogonimus ovatus*, *P. cuneatus*, *Strigea sphaerula*, *Echinostoma revolutum*, *Tamerlania zarudnyi*, *Dilepis undula*, *Anomotaenia constricta*, *Dicranotaenia serpentulus*, *Tetrathyrium variabile*, *Porrocaecum ensicaudatum*, *Microtetrameres inermis*, *Acuaria anthuris*, *Diplotrriaena tricuspsis*, *Microfilaria* sp., *Syngamus trachea*, *Capillaria contorta*, *C. resecta* and *Agamospirura* sp. Infection of nestlings took place in the first week of their life and by 9–16 days of age they were found to be infested with microfilariae and *Porrocaecum ensicaudatum*. Generally the percentage of infestation and the number of species increased with the age. The intensity of infestation increases in nestlings and decreases in young adult birds. C.R.

431—Zoologische Jahrbücher. Abteilung für Anatomie und Ontogenie der Tiere.

- a. WESSING, A., 1953.—“Histologische Studien zu den Problemen der Zellkonstanz: Untersuchungen an *Rhabditis anomala* P. Hertwig.” 73 (1), 69–102.

(431a) *Rhabditis anomala* is usually an hermaphrodite nematode found in earthworms but Wessing found males and describes and figures them for the first time. He investigated in great detail the cell divisions occurring as *R. anomala* matures and finds that with few exceptions cell constancy is shown by most parts of the body. J.B.G.

432—Zoologischer Anzeiger.

- a. WESSING, A., 1953.—“Biologische Beobachtungen bei der Zucht der Regenwurmnematoden *Rhabditis anomala* P. Hertwig.” 151 (1/2), 28–38.
b. GERLACH, S. A., 1953.—“*Lauratonema* nov.gen., Vertreter einer neuen Familie mariner Nematoden aus dem Küstengrundwasser.” 151 (3/4), 43–52.

- c. ALLGÉN, C. A., 1953.—“Über einige meistens neue oder seltene freilebende Nematoden aus dem Gullmarfjord (Bohuslän, Westküste Schwedens).” 151 (5/6), 86–95.
 d. ALLGÉN, C. A., 1953.—“Über einen Fall von Hermaphroditismus in der Gattung *Desmodora* de Man (Chromadoroidea, Nematodes).” 151 (5/6), 95–98.

(432a) Wessing investigated the behaviour of *Rhabditis anomala* from the earthworms under various external conditions. Eelworms lived for up to 13 months and encysted larvae for up to 2½ years when starved. The reserve food material contained in various organs was used up resulting in altered body proportions. Only little oxygen was required. The species is specially inclined to penetrate foreign tissue. J.B.G.

(432b) A new family, Lauratonematidae is erected to receive two species of a new genus, *Lauratonema reductum* n.g., n.sp. (type species) and *L. adriaticum* n.sp. The family is placed in the order Enoplida close to the Leptosomatinae and Phanodermatinae from which two it differs in two chief characters; the female gonoduct opens into the rectum and the cuticle is strongly cross-striated. Only one other nematode, *Rondonia rondoni* Travassos, 1919 a parasite of fishes, has a female cloacal opening. *L. adriaticum* differs from the type species in several ways. The main ones are that it is smaller, the ten head bristles are all long instead of there being six long and four short and the spicules are only half as big. The nematodes were found in the water in sand banks of the Italian Mediterranean coast. J.B.G.

(432c) A small collection of free-living marine nematodes from the west coast of Sweden contained eight species of which five are new, viz., *Phanodermopsis suecicum* n.sp., *Catalaimus klatti* n.sp., *Eurystomatina trichurum* n.sp., *Halichoanolaimus filipjevi* n.sp. and *Metalinhomoeus microsetosus* n.sp. The head and tail of each are figured. R.T.L.

(432d) *Desmodora greenpatchi* n.sp., a free-living marine nematode from the Falkland Islands, which is described and figured is a hermaphrodite form. It is differentiated from *D. campbelli* by the lack of preanal auxillary male papillae and from this species and *D. microchaeta* by the size of the submedian cuticular hairs and by the almost straight, uniformly fine spicules. R.T.L.

NON-PERIODICAL LITERATURE

- 433—INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 1953.—“Copenhagen decisions on zoological nomenclature. Additions to, and modifications of, the Règles Internationales de la Nomenclature Zoologique, approved and adopted by the 14th International Congress of Zoology, Copenhagen, August, 1953.” London: International Trust for Zoological Nomenclature, xxix + 135 pp., 5/—.

- 434—THAPAR COMMEMORATION VOLUME. A COLLECTION OF ARTICLES PRESENTED TO PROF. G. S. THAPAR ON HIS 60th BIRTHDAY, 1953, edited by J. Dayal & K. S. Singh.

- a. DAS, S. M., 1953.—“Gobind Singh Thapar.” pp. i–iv.
 b. BIOCCA, E. & BRONZINI, E., 1953.—“Morphology of *Uncinaria thapari* Biocca and Bronzini, 1953, and some observations on the species of genus *Uncinaria*.” pp. 1–8.

(434a) Das briefly reviews the life-history as a teacher and research worker of Prof. G. S. Thapar, in whose honour the present volume of 38 original articles contributed by leading parasitologists in many parts of the world has been published. R.T.L.

(434b) Morphological details are given of *Uncinaria thapari* and the differential diagnosis of *Uncinaria* species is discussed. *U. muridis* is considered to be a *Necator*. *U. stenocephala* of the dog and *U. criniformis* of the badger are clearly differentiated as distinct species by the characters of the caudal bursa. The genus *Uncinaria* is limited to the species *U. carinii*, *U. catholica*, *U. criniformis*, *U. felidis*, *U. hamiltoni*, *U. longespiculum*, *U. lucasi*, *U. stenocephala* and *U. skrjabini*. R.T.L.

THAPAR COMMEMORATION VOLUME. A COLLECTION OF ARTICLES
PRESENTED TO PROF. G. S. THAPAR ON HIS 60th BIRTHDAY, 1953,
edited by J. Dayal & K. S. Singh. (cont.)

- c. BUTTNER, A., 1953.—"Valeur évolutive de la progénèse chez les trématodes digénétiques." pp. 13-24.
- d. CABALLERO y CABALLERO, E., 1953.—"Helminths from the Republic of Panama. VI. A new trematode of the family Renicolidae Dollfus, 1939." pp. 25-30.
- e. CHAUHAN, B. S., 1953.—"A brief review of our knowledge of monogenetic trematodes of the Indian region." pp. 31-40.
- f. CORT, W. W., 1953.—"The germ cell cycle of the digenetic trematodes." pp. 41-50.
- g. CRAM, E. B., 1953.—"Evidence concerning geographic strains of human schistosomes and their molluscan hosts." pp. 51-62.
- h. DAYAL, J. & GUPTA, S. P., 1953.—"A new trematode, *Ganeo gobindia* n.sp., (Lecithodendriinae Odhner, 1911) from the intestine of a fresh-water fish, *Wallago attu* (Bloch)." pp. 63-68.

(434c) Buttner describes her work on progenesis in *Ratzia joyeuxi* and *Paralepoderma brumpti* and discusses the interpretation and possible significance of this phenomenon. S.W.

(434d) *Renicola thapari* n.sp. occurs in pairs in small cysts in the Bellini urinary tubes of *Pelecanus occidentalis californicus* in Panama. It differs from *R. glandoloba* in having a non-lobulated anterior testis and in the extension of the vitellaria from the second third of the body to the acetabulum. *R. lari* is a synonym of *R. glandoloba* and the generic name *Stamparia* is a synonym of *Renicola*. R.T.L.

(434e) Chauhan gives the names and systematic position of the 30 known monogenetic trematodes of the Indian region (India, Burma, Pakistan, Ceylon etc.) with their respective hosts, anatomical locations and localities. A list of 27 references is appended. R.T.L.

(434f) Cort reviews the published work on the germ cell cycles of digenetic trematodes. Recent studies support the hypothesis of germinal lineage which was proposed by Leuckart in 1887. According to this theory the reproductive cells in sporocysts and rediae can be traced back directly to the fertilized ovum. Although they never become true germ cells undergoing reduction divisions they remain separate from the somatic cells during the formation of the germinal sacs; consequently their reproduction is polyembryony of the original zygote. Although this is broadly true of many diverse groups of digenetic trematodes the actual mechanisms by which the germinal cells multiply vary greatly. Cort describes these mechanisms in members of the Paramphistomidae, Notocotylidae, Echinostomatidae, Psilostomidae, Fasciolidae, Troglotreumatidae, Hemiuridae, Lissorchiidae, Plagiorchoidea, Strigeatoidea, Spirorchiidae and Schistosomatidae and discusses their possible phylogenetic significance. S.W.

(434g) Recent observations indicative of strain differences in the schistosomes of man are reviewed. The published records of infectivity or resistance of geographical strains for exotic laboratory-bred snails are tabulated. It is reported that laboratory-reared progeny of a species of *Bulinus* obtained from the Gold Coast were successfully infected with miracidia of the Egyptian strain of *Schistosoma haematobium*, and further data are given concerning the strains of *S. japonicum* with which the snail *Pomatiopsis lapidaria* was experimentally infected by American workers. R.T.L.

(434h) *Ganeo gobindia* n.sp. in *Wallago attu* from the river Gomti, Lucknow, is the first species of this genus to be recorded from a fresh-water fish in India. Only one mature specimen has been found. It differs from *G. tigrinum* and *G. gastricus* in the presence of a muscular metraterm and in the V-shaped excretory bladder, and from *G. korkei* in the position and size of the testes. The shape of the bladder also distinguishes it from *G. attenuatum* and *G. kumaonensis*. In a discussion of the systematic position of the genus *Ganeo* the view that it belongs to Lecithodendriinae is supported. R.T.L.

THAPAR COMMEMORATION VOLUME. A COLLECTION OF ARTICLES PRESENTED TO PROF. G. S. THAPAR ON HIS 60th BIRTHDAY, 1953, edited by J. Dayal & K. S. Singh. (cont.)

- i. DOUGHERTY, E. C., 1953.—“The genera of the subfamily Rhabditinae Micoletzky, 1922 (Nematoda).” pp. 69–76.
- j. DUBOIS, G., 1953.—“Liste systématique des Strigeida (Trematoda) de l'Inde.” pp. 77–88.
- k. FREITAS, J. F. TEIXEIRA DE, 1953.—“‘Echinuriinae’ parasito de mamífero (Nematoda, Spiruroidea).” pp. 89–94.
- l. GOODEY, T., 1953.—“On two new species of nematodes associated with leaf-blotch in *Evodia roxburghiana* an Indian evergreen tree.” pp. 95–102.
- m. GORDON, H. McL., 1953.—“Discussion on epidemiology, resistance and anthelmintic treatment of helminthoses of ruminants in Australia.” pp. 103–118.

(434i) While approving of Osche's recent fragmentation of the unwieldy genus *Rhabditis*, Dougherty is convinced that Osche's eight subgenera should be raised to generic status in the subfamily Rhabditinae and that his “species-groups” in the subgenera *Rhabditis* and *Choriorhabditis* should be recognized as subgenera which have now been made by the addition of the appropriate suffixes *-dera* or *-ditis* to the first two or three syllables of the trivial names used to designate the “species-groups”. These are set out in tabular form. To the eight genera now recognized Dougherty adds *Brevibucca* Goodey and (tentatively) *Diploscapteroides* Rahm to the subfamily Rhabditinae. Two new combinations are made, viz., *Caenorhabditis briggsae* (Dougherty & Nigon, 1949) n.comb. and *Mesorhabditis belari* (Nigon, 1949) n.comb. Osche's opinion that *Rhabditis briggsae* is a synonym of *R. clavopapillata* is not accepted.

R.T.L.

(434j) The 56 species of Strigeida known to occur in India are arranged under their respective families and subfamilies with relevant synonymy and hosts. *Apharyngostrigea simplex* of Bhalerao, 1942 is recognized as *A. ramai*. Verma's identifications of (i) a parasite in herons as *Ophiosoma microcephalum* Szidat and (ii) *Holostomum serpens* in *Xenorhynchus asiaticus* are apparently erroneous. *Diplostomum orientalis* Vidyarthi, 1938 is preoccupied by *D. orientalis* Yamaguti, 1934 which is a synonym of *D. mergi* Dubois, 1932. *Neodiplostomum mehrii* is corrected to *N. mehrai*. The bibliography contains 38 references.

R.T.L.

(434k) *Skrjabinoclava thapari* n.sp. from the stomach of *Procyon cancrivorus* in Brazil differs from the three human species in the simplicity of the cephalic cordons and in the body spines which begin a little behind the cuticular collar.

R.T.L.

(434l) Two eelworms associated with small yellow blotches on dry leaves of the evergreen tree *Evodia roxburghiana* from the forests of the Western Ghats, Madras State, are described and figured, viz., (i) *Dirylenchus drepanocercus* n.sp. which is readily distinguished from other species by its very small size and the ventral sickle-shaped end of the tail and (ii) *Aphelenchoides sphaerocephalus* n.sp. which is easily differentiated from other species by its very small size, the almost spherical, sharply off-set head and the three leaf-like expansions of the cuticle of the tail tip of the female.

R.T.L.

(434m) Although eventually immunology will probably provide a basis for the control of helminthiasis, anthelmintics must continue to play an important role in control, but the timing of treatment is all-important from the epidemiological standpoint. Gordon briefly deals with (i) the several entities which make up the disease complex called parasitic gastro-enteritis, (ii) the efficacy of individual anthelmintics, (iii) the recent changes in the concept of the role of the pasture in the transmission of helminth infections, the recognition of a seasonal pattern of fluctuations in worm burdens and the influence of nutritional conditions, particularly those arising from recent developments in sown pastures and (iv) the phenomena associated with immunity and resistance including self-cure. Anthelmintics may be necessary as correctives when the parasite populations appear likely to exceed harmless levels and to control excessive worm burdens.

R.T.L.

THAPAR COMMEMORATION VOLUME. A COLLECTION OF ARTICLES
PRESENTED TO PROF. G. S. THAPAR ON HIS 60th BIRTHDAY, 1953,
edited by J. Dayal & K. S. Singh. (cont.)

- n. HORA, S. L., 1953.—"Mollusc control through fish farming." pp. 119-132.
- o. HSÜ, H. F. & LI, S. Y., 1953.—"Notes on fasciolopsiasis buski in China." pp. 133-138.
- p. JOHRI, L. N., 1953.—"A new avian cestode, *Thaparea magnivesicula* genus and species nova from the common fantail snipe, *Capella gallinago gallinago* Linn. from Delhi State." pp. 139-142.
- q. KAW, B. L., 1953.—"A note on the phylogeny of Pleurogenetinae Looss, 1899." pp. 143-148.
- r. KUNTZ, R. E., 1953.—"Development of the cercaria of *Echinoparyphium recurvatum* (Linstow, 1873) Lühe, 1909, with emphasis on excretory system." pp. 149-158.
- s. LARSH, Jr., J. E., 1953.—"A review of recent immunological studies on trichiniasis in mice." pp. 159-172.

(434n) The possibilities of control of molluscan vectors of trematode infections in India by the development of fresh-water fish farming cannot be undertaken before much more investigation and experimental work has been carried out. Although they do not do so under natural conditions, some fish species take to feeding on molluscs in impounded waters heavily stocked with snails. Bottom feeding fishes, particularly those of the genera *Mystus* and *Clarias*, deserve special study in this connection. The molluscan feeding habits of various Indian and African fishes are considered in detail and additional information on Indian fresh-water fishes is given in an appendix by P. I. Chacko. The helminth parasites of domestic animals in India which have molluscan vectors are listed. R.T.L.

(434o) A fourth and new highly endemic centre of fasciolopsiasis buski in China has been discovered in the city of Chuhsien, Chekiang Province, where the eggs of this parasite were found in the faeces of 13 out of 166 school children. The incidence of other helminths in this group was *Ascaris lumbricoides* 98.8%, *Trichuris trichiura* 69.3%, hookworm 5.4% and *Schistosoma japonicum* 4.2%. In Changhua hsien in the mid-western part of Taiwan five cases of fasciolopsiasis were detected out of the 4,000 persons examined, and the faeces of 11 out of 603 pigs were positive. A map of the island of Taiwan shows the known incidence of *Fasciolopsis buski* in pigs. R.T.L.

(434p) *Thaparea magnivesicula* n.g., n.sp. from the common fantail snipe, *Capella gallinago gallinago*, in Delhi State belongs to the subfamily Dipylidiinae and has one genital pore in each segment. A group of testes lies anterior to the ovary and the remainder are posterior to it; they do not extend into the lateral fields. The uterus is sac-like and each egg-capsule contains one egg. There is a double crown of alternating rows of large and small hooks which number 20 in all. R.T.L.

(434q) As the variations in the position and shape of the cirrus sac in the Pleurogenetinae are characteristic, Kaw is led to the conclusion that they provide sufficient data upon which to suggest that the probable course of evolution in this subfamily of the Lecithodendriidae followed four well marked lines, viz., amphibian, crocodilian, avian and chiropteran. The amphibian line is represented by *Nenimandijea*, the crocodilian by *Exotidendrium*, the avian by *Mosesia* and *Pleuropsolus* from which *Basantisia* and *Phaneropsolus* diverged, and the chiropteran by *Glyptoporus*, *Parabascus* and *Limatulum*, of which *Glyptoporus* is the primitive member. R.T.L.

(434r) A study of the development of the cercaria of *Echinoparyphium recurvatum* and its excretory system has shown that this follows generally that already recorded for the psilostomes and other echinostomes and adds further support for the use of the excretory system to indicate phylogenetic relationships. R.T.L.

(434s) Larsh reviews the recent experimental studies carried out in his laboratory on the immunology of trichinosis in mice. Attempts were made to modify natural resistance, age resistance and acquired resistance. Available evidence suggests that the resistance of old mice to reinfection is dependent on the primary actions of specific antibodies with secondary cellular

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- t. LÓPEZ-NEYRA, C. R., 1953.—“Las especies de *Tatria* Kowalewsky 1904 (Amabiliidae) consideradas teratologías de Hymenolepididae.” pp. 185–192.
- u. MANTER, H. W., 1953.—“Two new species of Proserhynchinae (Trematoda : Gasterostomata) from the Fiji Islands.” pp. 193–200.
- v. MARTIN, W. E., 1953.—“Redescription of *Phagicola lageniformis* Chandler (Trematoda : Heterophyidae) and observations on part of its life cycle.” pp. 201–208.
- w. MCINTOSH, A., 1953.—“A new heterophyid trematode from a Brazilian otter.” pp. 209–210.
- x. MOGHE, M. A. & DAS, E. N., 1953.—“On a new species of Acanthocephala of the genus *Arythmorhynchus* (Lühe, 1911), from India.” pp. 211–216.
- y. MÜELLER, J. F., 1953.—“Some observations on the problem of symmetry and individuality in *Taenia pisiformis*.” pp. 217–222.

co-operation. Mice given one or two stimulating infections intra-caecally were as capable of eliminating the worms of a challenging infection as those given similar infections by the mouth, proving that the local resistance which Chandler had suggested did not operate but strongly supporting the view that there was a general resistance.

R.T.L.

(434t) Lopez-Neyra considers that species of *Tatria* are probably abnormal members of the family Hymenolepididae, lacking female pores but with well developed seminal receptacles passing from one segment to the next. Abnormalities include variations in the number of testes (up to nine) and the absence of eggs and may be due to vitamin or hormone deficiencies in the diet of the host.

P.M.B.

(434u) Two new trematodes from Fiji are described and figured from marine fishes. (i) *Proserhynchus thapari* n.sp. from *Plectropoma maculatum* appears to be the same as the form from *Caranx* sp. which Nagaty identified as *P. facilis*. It differs only in that the uterus extends posteriorly to the genital pore but never anteriorly to the vitellaria. Manter considers *Skrjabiniella* and *Gotonius* synonyms of *Proserhynchus*. He recognizes two distinct groups of species in the genus, viz., those with oval or lenticular rhynchus and those with conical rhynchus; the type *P. squamatus*, with *P. aculeatus* and *P. uniporus*, belongs to the former and 15 other species to the latter. (ii) *Neidhartia polydactyli* n.sp. from *Polydactylus plebius* differs from the four known species in that the ovary is lobed and the cirrus sac is very thick walled.

R.T.L.

(434v) Martin supplements Chandler's original account of *Phagicola lageniformis* from the muskrat with an illustrated description of this species raised by feeding hatchery-reared chicks on fresh-water fish, *Fundulus pallidus*, in which the gills were found to be naturally infected with the metacercariae.

R.T.L.

(434w) *Cryptocotyle thapari* n.sp. from a flat-tailed otter, *Pteronura brasiliensis*, is closely related to *C. lingua* but the testes are tandem and the acetabulum-genital sinus complex is said to be unlike that found in any other member of the genus.

R.T.L.

(434x) Small orange-pink cysts in the mesentery of *Rana tigrina* contained acanthocephalan juveniles with body spines in both sexes. As a comparison of the number of rows of hooks (17–18) and the rings of spines distinguished them from *Arythmorhynchus duocinctus* they are named *A. tigrinus* n.sp. Living cysts were introduced by pipette into the gullet of a kite and a crow. Two weeks later the juveniles were found to have established themselves in the intestine; the proboscis had penetrated deeply into the gut wall.

R.T.L.

(434y) The substance of this paper appeared in an abstract published by Mueller in 1942 in *J. Parasit.*, 28 (6), Suppl. p. 10 [for abstract see *Helm. Abs.* 11, No. 219j]. Further study has shown that *Taenia pisiformis* does not always conform to the axial relations supposed to prevail in this group. Only rarely were both lateral excretory canals dorsal to the ovary which is presumed to be the normal arrangement in all *Taeniae*. The entire ovarian complex

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- z. NEGhme, A., 1953.—"An autochthonous focus of *Diphyllbothrium latum* in the southern hemisphere." pp. 223-226.
- ba. PRICE, E. W. & McINTOSH, A., 1953.—"Two new trematodes of the genus *Cotylophoron* Stiles and Goldberger from American sheep." pp. 227-232.
- bb. RAUSCH, R., 1953.—"The taxonomic value and variability of certain structures in the cestode genus *Echinococcus* (Rud., 1801) and a review of recognized species." pp. 233-246.
- bc. SINGH, K. S., 1953.—"*Echinostoma thapari* n.sp., from an Indian fish, *Notopterus chitala* (Hamilton)." pp. 247-250.

more or less regularly reverses its orientation in successive proglottides. Mueller has failed to find support for the view recently revived by Hyman that a tapeworm represents a segmented individual and not a linear colony.

R.T.L.

(434z) An endemic focus of *Diphyllbothrium latum* has recently been discovered among individuals living along the banks of the lakes Colico, Villarrica, Panguipulli, Riñihue and Ranco in Chile. G.Mann claims to have observed proceroid larvae in specimens of *Diaptomus* sp. in the lakes Colico and Villarrica. 22.6% of *Salmo irideus* and *S. fario* from lakes and rivers were found to be infected with plerocercoids of *D. latum* and dogs were experimentally infected. Seven dogs and two cats from the endemic region were also found to harbour the adult tapeworm. The infection has apparently been introduced by immigrants from Europe within the last ten years. A map indicates its distribution in southern Chile.

R.T.L.

(434ba) Two new species of *Cotylophoron* are recorded from American sheep, viz., (i) *C. noveboracensis* n.sp., from New York State, which is closely related to but smaller than *C. fülleborni* and has different hosts and distribution and (ii) *C. panamensis* n.sp. which is characterized by having the testes in the same "zone" and with "fields" (Stiles & Goldberger's terminology) nearly coinciding. The body is distinctly conical and not curved ventrally. As *C. indicum* has a distinct row of "dorsal external 2" fibres in the acetabulum which Näsmark considers distinctive of *Paramphistomum*, it is transferred to this genus but as there is already a *P. indicum* the species is renamed *P. thapari* nom.nov. *C. ovatum*, *C. orientalis*, *C. elongatum* and *C. okapi* are removed from *Cotylophoron* to *Orthocoelium* as Laurer's canal in these species does not cross the excretory vesicle and form a new subfamily Orthocoeliinae. It is pointed out that since subgenera have the same nomenclatural standing as genera, *Ceylonocotyle* becomes a synonym of *Orthocoelium*.

R.T.L.

(434bb) Rausch discusses the taxonomic value and variability of the morphological characters used hitherto for the differentiation of species of the genus *Echinococcus*, viz., length of strobila, number of segments, size and number of rostellar hooks, testes distribution, egg size and form of gravid uterus. He is of the opinion that the members of the genus exhibit a high degree of host specificity, e.g. *E. granulosus* can infect canine but not feline hosts or other carnivores. Of the seven species discussed *E. longimanubrius* and *E. minimus* are regarded as *species inquirendae*, as the shape and size of their rostellar hooks, upon which they were differentiated, are variable. *E. cameroni* is conspecific with *E. granulosus*. The species accepted by Rausch as valid are *E. granulosus*, *E. oligarthrus*, *E. lycaontis*, *E. felidis* and an unnamed species in the domestic dog and the arctic fox (*Alopex lagopus*) which has microtine rodents as its intermediate host and is probably identical with the form causing alveolar hydatid disease in man in Europe.

R.T.L.

(434bc) *Echinostoma thapari* n.sp. from *Notopterus chitala* purchased in the fish market at Lucknow is the first species of Echinostominae so far recorded from a fish and the first parasite reported from this host. The head collar is well developed and bears 25 collar spines, the smallest number present in the genus.

R.T.L.

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- bd. SCHUURMANS STEKHOVEN, Jr., J. H., 1953.—"Epidemiological investigations with respect to the distribution of parasites, more especially nematodes among the population of the island Apipe Grande, situated in the Alto Paraná, Provincia Corrientes República Argentina." pp. 251-258.
- be. STOLL, N. R., 1953.—"Continued infectivity for Japanese beetle grubs of *Neoaplectana glaseri* (Nematoda) after seven years axenic culture." pp. 259-268.
- bf. THOMAS, L. J., 1953.—"*Bothriocephalus abyssmus* n.sp., a tapeworm from the deep-sea fish, *Echiostoma tanneri* (Gill) with notes on its development." pp. 269-276.
- bg. TRAVASSOS, L., 1953.—"Nematódeos parasitos de *Gryllotalpa*." pp. 277-288.
- bh. VERCROYSE, R. A. F., 1953.—"Some remarks upon the polymorphic aspect of *Schistosoma bovis*." pp. 289-292.

(434bd) Investigations into the helminth infections in 519 inhabitants of the sandy subtropical island of Apipe Grande, Argentina, showed that hookworm occurred in 61 (i.e. 17.2%) of those belonging to the village of San Antonio and 39 (i.e. 23.5%) in the village of Vizcaino but the infections were light. *Trichuris* was absent; *Ascaris* and *Strongyloides* were present but only in a few instances; *Enterobius* was considered on clinical reports to be very prevalent. The adult hookworms removed by treatment proved to be *Ancylostoma* as well as *Necator*.

R.T.L.

(434be) A strain of *Neoaplectana glaseri* which had been maintained in axenic stock cultures for over seven years and had passed through 180 to 195 generations gave no evidence of loss of parasitic proclivities when added to soil containing grubs of *Popillia japonica* or when pipetted directly into their mouth parts. The character of the parasitism of this nematode is discussed. It is regarded as a parasite with unproved saprozoic characters strikingly capable of multiplying *in vitro* and *in vivo*.

R.T.L.

(434bf) *Bothriocephalus abyssmus* n.sp. from *Echiostoma tanneri*, a deep-sea fish taken at a depth of 270-300 fathoms 20 miles south-east of Bermuda, is described and figured. The bothria are deep and slit-like and open terminally but there is no terminal disc. The scolex is cucurbitiform and is set apart from the segments. There is no true neck. The segments are not sharply delineated but have frilled margins when unrelaxed. The uterine sac is reticulate with 4-12 pouches. Its pore opens ventrally and irregularly to the right and left of the median line. The eggs are dark brown, thick-shelled and cucurbitiform, measuring $101\mu-108\mu \times 42\mu$. Although they develop at sea level the coracidia disintegrate on hatching: they must therefore normally hatch at great depths.

R.T.L.

(434bg) Travassos describes and figures three nematodes from *Gryllotalpa* sp. in Brazil, viz., *Binema ornata*, *Cameronia biovata* and *Chitwoodiella thapari* n.sp. which closely resembles *C. ovifilamenta* but is distinguished by its smaller measurements and particularly by the arrangement of the caudal papillae in the male. The shape of the posterior extremity in the male is very similar to that of *Pulchrocephala* and *Artigasia*.

R.T.L.

(434bh) From an examination of specimens of *Schistosoma bovis* collected by Dr. Thienpont in Ruanda in the Belgian Congo, Vercruysse is unable to accept Van den Berghe's criteria for the differentiation of *S. matthei* as a distinct variety of *S. bovis* as they all fall within the wide variability range of *S. bovis*.

R.T.L.

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- bi. WITENBERG, G., 1953.—“Notes on *Galactosomum* and related genera (Trematoda: Heterophyidae).” pp. 293–300.
- bj. YAMAGUTI, S., 1953.—“*Ceylonocotyle scoliocoelium* (Fischöeder, 1904) Näsmark, 1937 (Trematoda: Paramphistomidae) from Japanese goat.” pp. 301–304.
- bk. YUTUC, L. M. & COSIO, H. F., 1953.—“The incidence and frequency distribution of parasitic worms in naturally infected cats.” pp. 305–308.

(434bi) Witenberg still regards *Galactosomum*, *Stictodora* and *Cercarioides* as valid genera of Heterophyidae and provides a key for their differentiation, but *Parastictodora* is put into the synonymy of *Stictodora* as the ratio of length of prepharynx and oesophagus, which was the main difference, depends on the state of extension of the specimens. The genus *Galactosomum* is defined, with *Microlistrum* and *Tubanguia* as synonyms, and a key is given for its species, but *G. semifusum* and *G. erinaceum* are excluded as insufficiently known. *Stictodora* is also defined, with *Cornatzium* and *Acanthotzema* as synonyms, and there is a key to its species. It excludes the four species described by Onji & Nishio, 1924 as details of these were unavailable, but includes *Stictodora thapari* n.sp., one specimen of which was found among numerous specimens of other heterophyids in the intestine of a cat in Jerusalem. The gonotyl in *S. thapari* is armed with two separate bars about 17 μ long and the acetabulum is indistinct. *S. hancocki* (Martin, 1950) is a new combination for *Parastictodora hancocki*.

R.T.L.

(434bj) *Ceylonocotyle scoliocoelium* is redescribed from specimens obtained from a goat in the Nagano Prefecture, Japan. In essential characters it agrees with Fischöeder's original description.

R.T.L.

(434bk) Fifty-one cats of both sexes which were autopsied in the Philippines were all parasitized by helminths. The numbers infected with the various species were *Ancylostoma braziliense* 35, *Physaloptera pseudopraeputialis* 27, *Gnathostoma spinigerum* 20, *Diphylobothrium irini* 11, *Dipylidium* spp. 10, *Toxocara cati* 3 and *Ancylostoma caninum* 1. Not one of the 16 species of Trematoda reported in the Philippines was encountered in this series.

R.T.L.

435—UNITED STATES DEPARTMENT OF AGRICULTURE, 1953.—“Index-catalogue of medical and veterinary zoology. Supplement 1. Authors: A to B.” Washington, D.C.: U.S. Government Printing Office, pp. 1–317.

436—VODOPIVEC, S., SIVEC, S. & TOMAŽIČ, G., 1953.—“O santoninu iz jadranskega morskog pelina (*Artemisia caerulescens* L.). Poročilo o raziskovanju.” Ljubljana: 46 pp. [English summary pp. 35–45.]

In their earlier investigations into the anthelmintic content of *Artemisia caerulescens* which grows wild in the north and central Adriatic regions, the authors had obtained a crystalline substance in which individual crystals of santonin were detected microscopically. These were separated mechanically and the concentrated crystals were named Substance Osor after Osor in the island of Cres where the plants had been collected. They have now isolated santonin from plants growing in the neighbourhood of Ankarán and Sečovlje. The recrystallized substances are named Substance Ankarán and Substance Sečovlje. The present report gives a description of the plants, the percentages of santonin recovered and the results of treatment of cases of ascariasis in man and dogs. These trials established that santonin extracted from Adriatic wormwood, *Artemisia caerulescens*, acts in the same way as imported santonin. There were no unpleasant after effects.

R.T.L.

- 437—YAMAGUTI, S., 1953.—“Systema helminthum. Part I. Digenetic trematodes of fishes.” Tokyo: 405 pp.

As the morphological and biological characters of trematodes render it almost impossible to classify all the known species in accordance with their natural relationships, Yamaguti in a new “systema helminthum” has decided to divide them firstly according to the primary divisions of their hosts and then on the basis of their developmental and morphological characters. In this volume he deals systematically with the 46 families of Gasterostomata, representatives of which have been recorded from fishes. No attempt has been made to arrange the genera into subfamilies because these subdivisions are still subject to much discussion. Most of the generic descriptions have been rewritten. The species of each genus are listed alphabetically after the genotype. If a good original figure of the genotype was not available, the best illustration of another member of the genus has been reproduced. The following new genera are defined: *Creptotrematina* n.g. for *Creptotrema dissimilis* Freitas, 1941; *Hurleytrematoides* n.g. for *Hurleytrema chaetodoni* Manter, 1942, *Pseudohaplorchis* n.g. for *Haplorchis anguillarum* Tubangui, 1933, *Pseudohurleytrema* n.g. for *Hurleytrema eucinostoma* Manter, 1942, *Pseudosellacotyla* n.g. for *Sellacotyle lutzii* Freitas, 1941. There are separate alphabetical lists of genera and species.

R.T.L.